## Chapter 1

# Antoine Béclère

## (1856–1939)

*"La radiothérapie est, à la fois, le fruit le plus inattendu et le plus precieux de la decouverte de Röntgen." (1898)*[62]

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Antoine Louis Gustave Béclère was born in Paris on 17 March 1856. He was the son of Léonie Pellisier (1828–1897), of a family originating in Picardie, and of Dr. Claude Béclère (1817–1907), from Simard (Bresse). Young Antoine grew up in the Parisian quarter of Saint Martin, and attended the Lycée Bonaparte (now Condorcet), where poet Stephan Mallarmé (1842–1898) taught English. He lived through the uneasy days of the Prussian siege and bombardment of Paris, and witnessed the greater material destruction brought about by the vengeful *communards*. When he was seventeen years old, Béclère registered for his PCN (one premedical year of physics, chemistry, and natural history), and was also accepted as an observer in the Lariboisière Hospital surgical service.

The Medical School of Paris was in the Latin Quarter in the Cordelier district of former days. Béclère passed the examinations and became an *extern* at the Beaujon Hospital. He then volunteered his military service and spent a year at Lille. On his return to Paris, he presented himself for the *concours de l'internat*, a competitive written, oral, and practical examination at which he succeeded on his first try. He exercised his prerogative and chose for his training (1877–1882) the best services in internal medicine, ophthalmology, pediatrics, and infectious diseases. Working at the Children's Hospital (Enfants Malades) under Professor N. A. Labric, he worked on his doctor's thesis, *La contagion de la rougeole* (measles). He recorded original observations on time, incubation, and modalities of transmission. He noted that the agent was transmissible from the onset, and that contagion was at its highest during the nasal catarrh and ceased with the appearance of skin manifestations of the disease.

Basking in the aura of Claude Bernard (1813–1878) and of Louis Pasteur (1822–1895), Antoine Béclère never abandoned his attachment to experimental medicine. His work in the field of immunology brought him to the attention of Joseph Lister (1827–1912) and in time brought posthumous recognition from immunologists and virologists.[71,534,535] Basically a fine clinician, he was drawn by his innate curiosity into the wake of Röntgen's discovery and became one of the world's principal protagonists in the unfolding of its medical applications. "Cette voie m'a paru le Chemin de la Terre Promise," he said, "je m'y engageai." Béclère enthusiastically devoted his efforts to what proved to be the groundwork for a remarkable transformation of diagnostic medicine. Radiology (he coined the word) was enriched by his numerous contributions, and its practitioners everywhere recognized him as a genial and lovable father (Fig. 1-1).

On 20 July 1887, Béclère married a shy young woman twelve years his junior, Cécile Vieillard-Baron (1868–1922), who proved to be a dedicated and loving life companion. They spent their honeymoon in Switzerland and made their first home in the heart of Paris at 5 rue Scribe. Like so many contemporary couples, they bicycled far from home on weekends and holidays. They had three children: Marie (1888–1916), Antoinette (1894–1981), and Claude (1897–1971).

Since his graduation, Béclère had coveted a public hospital service of his own, and his persistence brought him success in May 1893. He chose the Hospice Debrousse in order to pursue his interests in experimental research in contagious diseases. He geared his inquiry to the immunological mechanisms of resistance to infection and undertook the vaccina-

Fig. 1-1. Béclère as a young physician around 1895. (Courtesy of Mlle. Antoinette Béclère.)

tion of patients against smallpox with the serum of heifers (*genisses*), because he could use large amounts of such serum without the difficulties that accompanied the injection of horse serum. In 1895 he traveled to Marseille during an outbreak of smallpox and injected ten patients, seven of whom were cured. He showed that pregnant women who acquired immunity to vaccinia before gestation transmitted it to their offspring, but not so those who were vaccinated during pregnancy. His experimental work included the inoculation of monkeys and was done mostly at the Institut de Vaccine Animale on the rue Ballu. His collaborators and co-authors were Ernest Chambon (1836–1910) and Toussaint Saint Yves-Menard (1847–1910). Publication of their work appeared in the *Annals of the Pasteur Institute*.[63–65] Béclère also had a deep interest in endocrinology and opotherapy. He successfully treated cases of myxedema and Addison's disease with thyroid and suprarenal glands from calves he personally procured in the *abatoirs*.

Within days of the announcement of Röntgen's discovery, a Parisian physician, Toussaint Barthélemy (1852–1906), and a physicist, Paul Oudin (1851–1923), repeated the experiments in Paris. News of the invisible rays distracted Parisians from the Panama Canal scandals, *l'affaire* Dreyfus, and the success of *Cyrano de Bergerac* at the Theatre de la Porte Saint Martin. Béclère attended one of the early demonstrations at the home of Oudin and immediately sought to familiarize himself with the details. Characteristically, Béclère arranged for personal instruction in physics. With the help of an ingenious mechanic, L. Drault, he secured the necessary equipment for use in his office: a small static machine operated by hand (Fig. 1-2). It consisted of two pairs of plates forty-five centimeters in diameter (Wimshurst type) rotating opposite to each other, which generated a current of 0.2 milliamperes, enough to make the anticathode "blush" ("... comme rougissaient autrefois les jeunes filles," noted Béclère). The entire equipment weighed only sixty-five pounds yet yielded incredible results. Jean Bergonié (1857–1925)[B] traveled from Bordeaux to see for himself. Exposed glass plates were usually carried home to be developed in the evenings by Madame Béclère.

On 5 February 1897, with Barthélemy and Oudin, Béclère made a demonstration of a patient with an aneurysm of the aorta before an assembly of physicians of the hospitals of Paris.[68] On this and on subsequent occasions, he pointed at the ease with which movements of the diaphragm, pleural symphyses, tracheobronchial adenopathies, and interlobar effusions could be observed.

In 1897 Béclère had been promoted to head a medical service at Hôpital Tenon. There he organized his first course of instruction in radiology, consisting

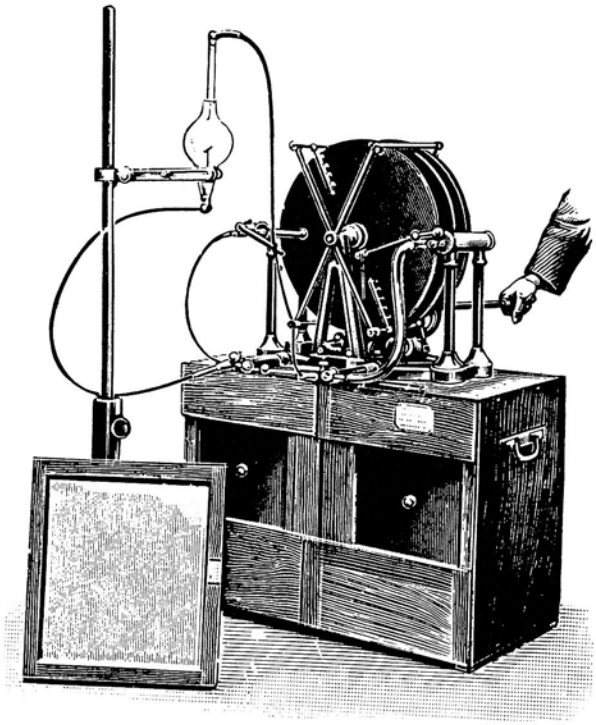


Fig. 1-2. Hand-operated static generator used by Béclère before the end of the century. (Courtesy of J.B. Baillière, Paris.)

of seven weekly Sunday lectures and demonstrations given in the spring and fall of that year.[26] These thorough courses included demonstrations of equipment, fluoroscopy, and medical and surgical uses. Holding the fluoroscopic screen with his hands, Béclère demonstrated its use. By placing a sheet of transparent paper over the screen, he would also make records of findings by tracing the landmarks and designating the location of abnormalities. In July 1898, before the fourth International Congress of Tuberculosis held in Paris, Béclère demonstrated the value of fluoroscopy in the diagnosis of pulmonary tuberculosis, which he termed an extraordinary consequence of Röntgen's discovery.[24]

In 1899 Béclère was made Chief of Service at Saint Antoine's Hospital. He now used an induction coil machine (with special insulation), but since the hospital had no electrical current available, he had to rely on batteries which required frequent recharging. The radioscopic work was done in a disused chapel in which about twenty persons were usually crowded. The stream of visitors and observers learned to bear the uncomfortable circumstances imposed by the heavy black curtains needed for absolute darkness.[60] Béclère made a study of the differences in adaptation to darkness for fluoroscopy and related it to various factors, including fatigue.[24] He developed a library of radiologic publications, a teaching collection of roentgenograms, and a museum of wax casts of irradiated skin lesions. He saw the danger of allowing the operation of radiology to be entrusted to photographers and other laymen, and insisted on the importance of keeping it under the control of physicians.[42] "It is indispensable," he repeated often, "that each hospital be provided with a radioscopic and a radiographic laboratory."[24] The biannual course of lectures was gradually extended to daily lectures that eventually lasted three weeks.

Following a long and arduous morning of work at the hospital, Béclère would hire a *fiacre* to go home for lunch and for an afternoon and evening of work at his office at 122 rue la Boëtie, not far from the Champs Elysées. The driver was expected to transport his batteries, and Béclère would later recount the driver's impression that they were heavier when recharged. Frequently, he invited along one of his assistants to be regaled by stimulating and humorous conversation as they rode through Baron Haussmann's daylight Paris, a different version from Toulouse Lautrec's. In spite of the everyday physical and educational activities, Béclère found time to write his first volume, *Les rayons de Roentgen dans le diagnostic de la tuberculose.*[25]

In 1900 Béclère made a report to the first International Congress of Electrology and Medical Radiology in Paris. He detailed his experiences with radiodiagnosis of diseases of the lung and of the mediastinum. To eliminate what he called "parasite" rays, he introduced an iris diaphragm of his own design (Fig. 1-3). It consisted of two rectangular lead pieces brought together to produce a variety of square openings of various dimensions.[28] By introducing a double cross of wires in the path of the beam of rays, he could use the tangent normal rays to outline the area of the heart, thus establishing the basis of orthoradioscopy.[29] In a short time, he wrote a second volume, *Les rayons de Roentgen et le diagnostic des affections thoraciques non-tuberculeuses.*[30]

Béclère made other innovations in the application of the new technology. One problem encountered daily was the unpredictability of the X-ray tube's performance. Radiologists became accustomed to "hardening" their tubes before making exposures. The usual test of the tube's readiness was the radiologist's ability to see the bones of his own hand. Since he already had observed untoward effects on the skin of his own hands, Béclère advocated measures of protection for physicians and patients.[22] He conceived the use of a clever inter-position (Fig. 1-4), a spark gap he called the "spintermeter."[27] As early as 1900 he became interested in stereoradiography, which he often demonstrated.[31] He accumulated an excellent collection of plates for his courses. He pointed at the possibility of radiodiagnosis of acromegaly.[32] He advo-

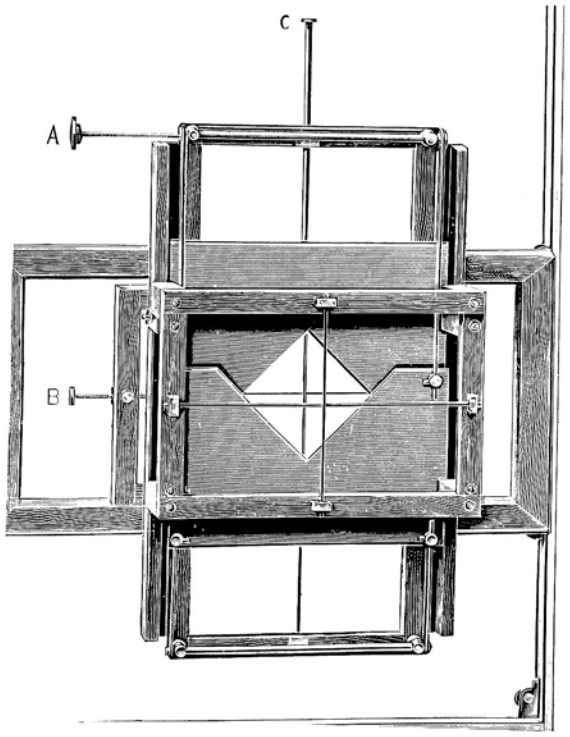



Fig. 1-3. Béclère's iris diaphragm and double wire cross.

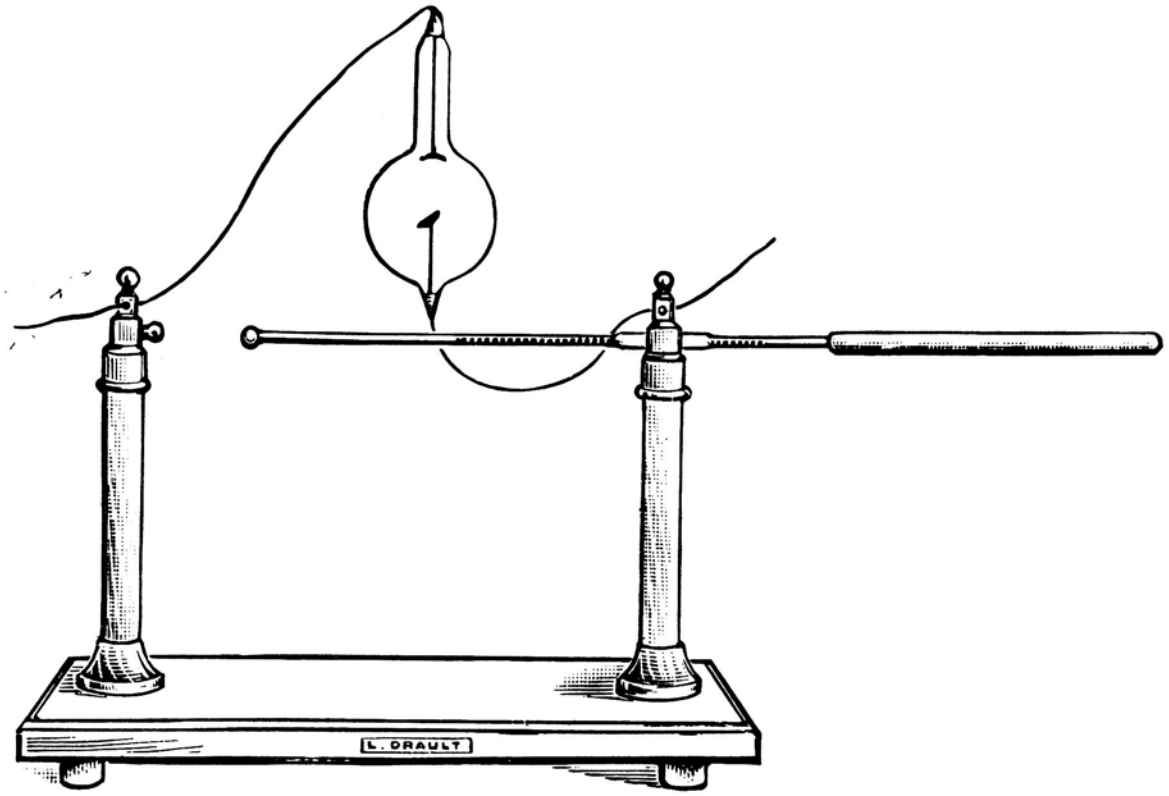



Fig. 1-4. Béclère's spintermeter to estimate the quality of the beam of radiations. (Courtesy of J.B. Baillière, Paris.)

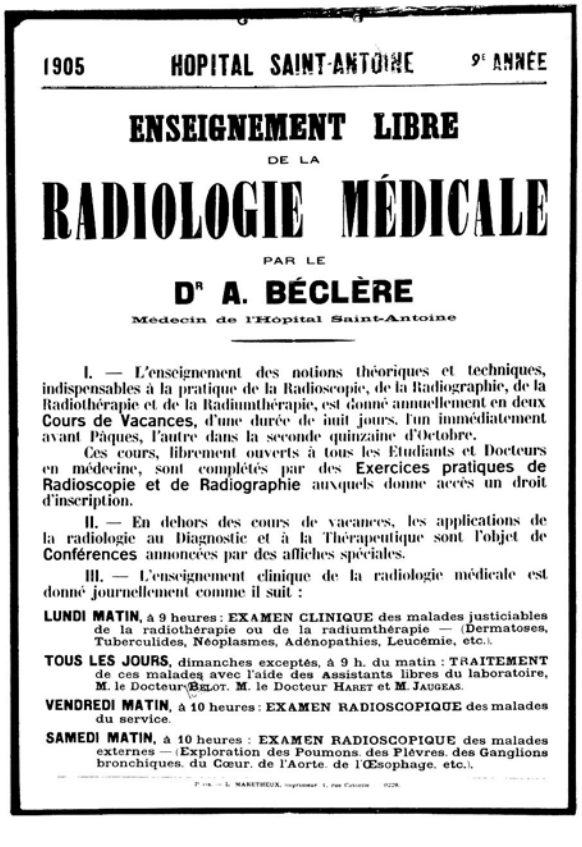
cated the routine radioscopic examination of applicants for life insurance.[34]

Like many pioneers, Béclère was at first primarily drawn to the rich promise opened by the roentgen rays in the investigation of medical diagnostic problems. In 1901 he read and translated into French a book by Francis Henry Williams (Chapter 2), an American pioneer working at the Boston City Hospital.[64] He was particularly interested in the account of radiotherapeutic results in cases of hyperthyroidism and cancer of the lower lip.

Although he maintained an interest in diagnostic radiology, an area in which he so richly contributed, he acquired an increasing interest in radiotherapy.[45] At the second International Congress of Electrology and Medical Radiology, held in Berne in 1902, Béclère was greatly impressed by Guido Holzknecht's (Chapter 3) presentation of his chromoradiometer: the possibility of measuring the amounts of radiations administered fascinated him.[44] He wasted no time in proceeding from Berne to Vienna in order to observe the actual use of Holzknecht's device. On his return to Paris, he created a service of radiotherapy at the Saint Antoine Hospital and, in an address to the Society of Dermatology, pointed out the sound basis which dosimetry gave to radiotherapy. His courses now included lectures and demonstrations of roentgentherapy.[44] In the opinion of Gösta Forsell, this department soon became the outstanding radiotherapeutic clinic in Europe.

Since the demands of radiology were increasing rapidly, Béclère decided to put the medical responsibilities of his wards under a brilliant young internist, Edward Rist. This gave him more time to study subjects of interest, such as the circulatory origins of osteoarthropathies.[35] When a few milligrams of radium became available, coinciding with Danlos's early trials, Béclère irradiated two patients with recurrent carcinoma of the breast in Pierre Curie's own laboratories. He carefully noted effects on the tumors and on the skin.[41] He reported to the medical profession the knowledge of radium emanation (radon) and made a keen appraisal of the therapeutic possibilities of these radiations, similar in their effects but different in quality from the roentgen rays. He pointed out that doses of radium and roentgen rays appearing equal in Holzknecht's chromoradiometer had different effects because of their different qualities.

Béclère became interested in the irradiation of pituitary tumors.[46] He presented to the medical society of the hospitals of Paris a case of extensive carcinoma of the face and another of cancer of the larynx, both cured by radiotherapy.[40,70] He also published a paper on the radiotherapeutic management of forty-



1905 HOPITAL SAINT-ANTOINE 9e ANNÉE

ENSEIGNEMENT LIBRE
DE LA
RADIOLOGIE MÉDICALE
PAR LE
Dr A. BÉCLÈRE
Médecin de l'Hopital Saint-Antoine

I. — L'enseignement des notions théoriques et techniques, indispensables à la pratique de la Radioscopie, de la Radiographie, de la Radiothérapie et de la Radiumthérapie, est donné annuellement en deux **Cours de Vacances**, d'une durée de huit jours, l'un immédiatement avant Pâques, l'autre dans la seconde quinzaine d'Octobre.

Ces cours, librement ouverts à tous les Etudiants et Docteurs en médecine, sont complétés par des **Exercices pratiques de Radioscopie et de Radiographie** auxquels donne accès un droit d'inscription.

II. — En dehors des cours de vacances, les applications de la radiologie au Diagnostic et à la Thérapeutique sont l'objet de **Conférences** annoncées par des affiches spéciales.

III. — L'enseignement clinique de la radiologie médicale est donné journellement comme il suit :

**LUNDI MATIN**, à 9 heures : **EXAMEN CLINIQUE** des malades justiciables de la radiothérapie ou de la radiumthérapie — (Dermatoses, Tuberculides, Néoplasmes, Adénopathies, Leucémie, etc.).

**TOUS LES JOURS**, dimanches exceptés, à 9 h. du matin : **TRAITEMENT** de ces malades avec l'aide des Assistants libres du laboratoire, M. le Docteur BELOT, M. le Docteur HARET et M. JAUGEAS.

**VENDREDI MATIN**, à 10 heures : **EXAMEN RADIOSCOPIQUE** des malades du service.

**SAMEDI MATIN**, à 10 heures : **EXAMEN RADIOSCOPIQUE** des malades externes — (Exploration des Poumons, des Plèvres, des Ganglions bronchiques, du Cœur, de l'Aorte, de l'Œsophage, etc.).

Fig. 1-5. 1905 poster announcing lectures and demonstrations on radiodiagnosis and radiotherapy by Béclère and associates.

five patients with inoperable or recurrent carcinoma of the breast, and continued to insist on the advantages of careful dosimetry.[36,41,48,55]

Case studies of leukemia treated in Chicago by William Allen Pusey (1862–1940)[B] were published by Nicholas Senn (1844–1908) in the U.S. and abroad.[473] This led Béclère to verify and publish their favorable results and to give this subject to one of his students for a doctoral thesis.[43,22] Hermann Heineke (Chapter 4) made his experimental study of the effects of radiations on animal tissues.[265] C. Aubertin (1876–1950) and E. Beaujard emphasized the effects on the hemopoietic tissues.[15] Béclère insisted on the need for radiologic instruction of medical students and again on the fact that the practice of radiology should be entrusted only to physicians.[42] With his radiotherapeutic associates, Joseph Antoine Charles Belot (1876–1953)[B] and Georges Haret (1874–1932), he presented a comprehensive review of the results obtained in radiotherapy of cancer ("en dehors de l'intervention chirurgicale, la radiothérapie est la plus grande conquête qu'il ait été jusqu'à present realisée dans le traitement de cette terrible maladie..."). This memoir brought them the Daudet Prize of the Academie Française de Médicine in 1906.[62]

Béclère treated successfully a young man with an abdominal metastasis after orchiectomy for seminoma. This early observation led to the systematic utilization of radiotherapy.[51] In 1908 Béclère started to irradiate a series of patients with uterine leiomyomas. The total number of patients eventually grew to nearly two thousand. He felt that the resulting ovarian sterilization contributed to regression of the tumors.[50] He irradiated a sixteen-year-old patient with a pituitary tumor, who, twenty-three years later, was the subject of a follow-up report.[58]

With a group of friends and students, Béclère founded in 1908 the Societé d'Eléctroradiologie Médicale de Paris, which a few years later extended to all of France. He was elected a member of the Academie Française de Médicine to occupy the vacant seat of chemist Marcelin Berthelot (1827–1907). His interest in radiodiagnosis now extended to the gastrointestinal tract. With Meriel he reported on the radiologic findings in surgical disease of the stomach and intestines, providing useful information as to site, dimension, and mobility of the suspected lesions, with a hitherto unknown precision.[57] He also pointed out the value of radiology in forensic medicine.[49] His third volume in the series of Baillière's *Actualités Médicales* featured the role of the roentgen rays in internal medicine.[38] In frequent presentations before the Societé Médicale des Hôpitaux, he kept his colleagues informed of useful possibilities in the discovery of urinary and gallbladder calculi, congenital malformations, effusions, foreign bodies, radiographic demonstration of the appendix, etc.[47]

At the end of the first decade of the century, Béclère's department was the center of the attention of visitors from all parts of the world.[241] His courses now included a larger number of lectures and demonstrations in roentgentherapy and curietherapy (Fig. 1-5). In 1913 he reported his experiences with radiotherapy of leukemias to the Medical Congress of London. Radiation injuries to the skin of his hands forced him to withdraw from the practice of fluoroscopy, and the gray gloves with which he covered them became his distinctive life companions. His radiodiagnostic interests were adopted by his disciples.

Béclère was already fifty-eight years old at the onset of World War I, when he offered his services to his country. He helped organize 120 radiologic stations in the Parisian military complex. At the military hospital of Val de Grace, he developed the training, in groups of 20, of army radiologists that eventually reached a total of 260. He coordinated his efforts with those of Marie Curie in the operation of her fleet of radiologic ambulances.[495] He worked intensively but found the time to write almost daily an

affectionate and thoughtful letter to his son Claude, who served as a lieutenant of artillery in Lorraine. Again he saw his beloved city bombarded. In the midst of war, he lost his eldest daughter, Marie, twenty-eight years old and only three years after her marriage to a young physician, René Mathieu.

When the ordeal of the war was over, Béclère returned to Saint Antoine, which he had never abandoned and where work had been effectively maintained by his younger associates. Moreover, he had met Claudius Regaud (Chapter 7) and agreed to join forces with him in the development of the medical departments of the Radium Institute of the University of Paris (Fig. 1-6).[494] A bond of solid friendship developed between these genial men, born of their common ideals and genuine respect for each other. Béclère gave his collection of books and journals to the library of the Fondation Curie and continued his courses there until 1927.[66]

Subsequently, he gave his support to Prof. André Strohl (1887–1977) of the department of physics of the Faculty of Medicine. With a constellation of brilliant speakers, Strohl developed a comprehensive academic year of lectures and demonstrations toward the *Certificat d'Eléctro-radiologie*. The Certificate became a prerequisite for the Diploma of Radiophysiology and Radiotherapy, which required four six-month periods of full-time training in an acceptable department and presentation of a thesis. This early enlightened offering and progressive academic display contrasted with the fact that the Faculty of Medicine of the University of Paris did not create a Chair of Radiology until 1947. In his lifetime, Béclère would have been the undisputed choice to head the department.

It is a very difficult task to give an account of Béclère's disciples, to all of whom he gave his guidance and accorded paternal friendship. Many of his interns, associates, and colleagues who observed and learned radiology at his side did not necessarily become radiologists, yet continued to revere him as their patron. Also, many who were inspired by him and considered themselves his disciples did not of necessity serve under him any length of time. Among all of these, there were a number who became shining figures of radiology in their own rights: Paul Auborg (1875–1940) and Leglius Antoine Gagnier

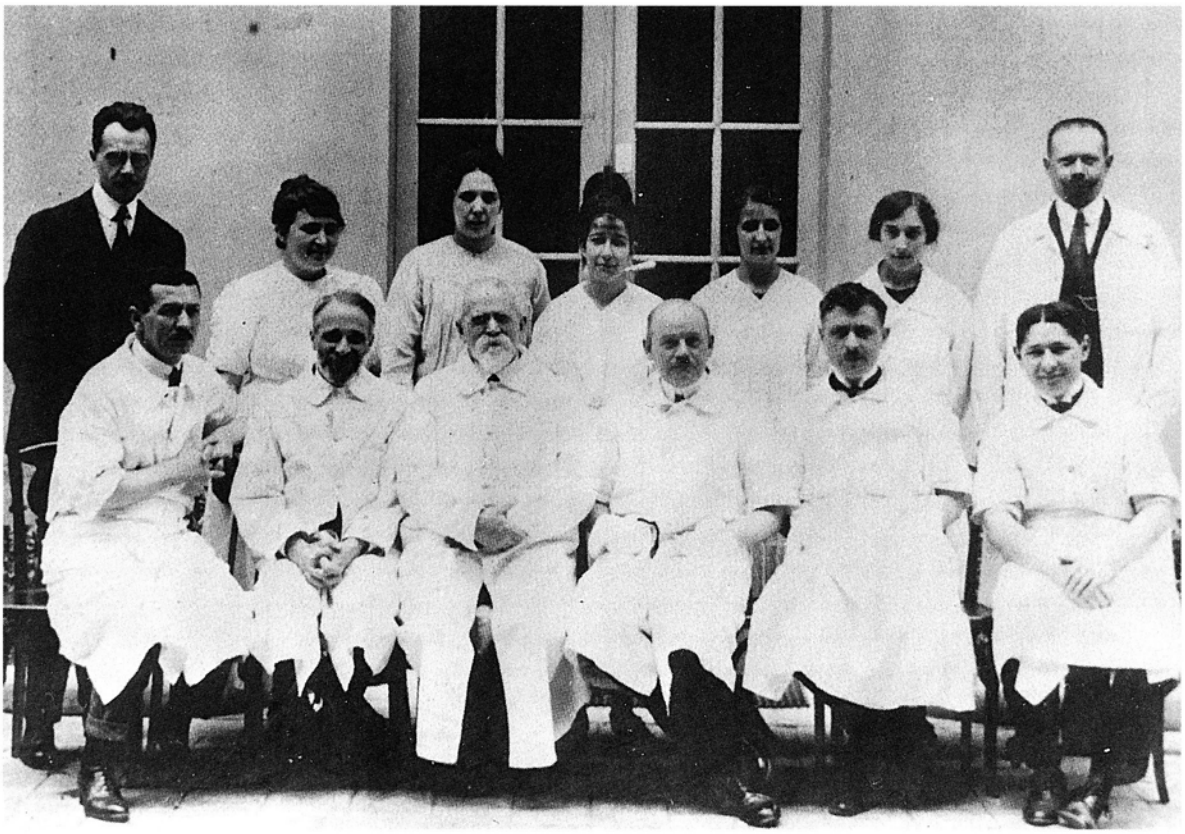


Fig. 1-6. Workers of the Radium Institute of the University of Paris around 1927. Seated: Henri Coutard (roentgentherapist), Justin Jolly (hematologist), Béclère, Octave Monod (curietherapist), Georges Richard (curietherapist), Alfonso Esguerra (foreign *stagier* from Bogotá). Standing: André Paulin (bacteriologist), Mlle. Jullien (radiotherapeutic technologist), Mlle. Gretau (secretary), Mlle. Geneviève Gaudet (chief laboratory technologist), Mlle. Marie Louise Gaudet (laboratory technologist), Mlle. M. Regaud (research laboratory volunteer), M. Meunier (engineer). (Courtesy of Dr. Mario Gaitán-Yanguas.)

(1871–1944) of Montréal, G. Felix Blairon (1877–1957), Louis Delherm (1876–1952), René L.G. Desplats (1876–1942) of Lille, Andre Laquerrière (1874–1945), Maurice Gilson (1887–1975), and André Jousset (1867–1940). Pierre Jore d'Arcès wrote his doctor's thesis (1903) on the radiologic examination of the esophagus, and Eugene Beaujard (1874–1937) on radiotherapy of leukemias (1905). A second group was constituted by Paul Aimé (1880–1951), Georges Detré (1882–1962), René Gauducheau (1881–1968) of Nantes, Gaston Raulot-Lapointe (1882–), René Ledoux-Lebard (1879–1948), and Georges Maingot (1883–1962). François Auguste Jaugeas (1880–1919) died prematurely from electrocution while doing fluoroscopy at the American Hospital of Neuilly. Henri Béclère (1880–1937), a cousin, became an important figure in the development of radiodiagnosis of the gastrointestinal tract. Marcel Sieur remained an army radiologist. Among the latest associates were Lucien Charles Marie Mallet (1885–1981), André Bisson (1888–1959), Paul Gibert (1890–1955), and Claude Béclère (1897–1971), his son, who did original work in the radiodiagnostic exploration of the gynecologic tract (subj. note 1.1).[61]

A good number of Béclère's disciples devoted their professional lifetimes to radiotherapy: Joseph Antoine Charles Belot (1876–1953)[B] wrote his doctoral thesis on dermatologic radiotherapy (1903) and became the internationally acclaimed author of an early book on radiotherapy.[75] Georges Haret (1874–1932) had a distinguished career at the Lariboisière Hospital. Jean Pierquin (1887–1958)[B] and George Richard (1888–1962)[B] became collaborators of Regaud at the Pasteur Hospital Service. Charlotte Juliette Baud (1893–1979)[B] became an important figure in the development of interstitial and intracavitary techniques of radium therapy at the Institut du Radium. Iser Solomon (1880–1939)[B] developed a dosimeter, wrote a book on radiotherapy, and was Béclère's successor in radiotherapy at Saint Antoine's.[54] Thus, unlike some pioneers in radiology, Béclère left us a rich radiotherapeutic heritage.

In the 1920s Béclère concentrated his interests on radiotherapy of pituitary tumors, thymic tumors and hyperthyroidism.[69,52] Beyond his interests in radiotherapy of uterine leiomyomas, he turned to the treatment of cancer of the cervix. He made a thorough critique of the method proposed by Ludwig

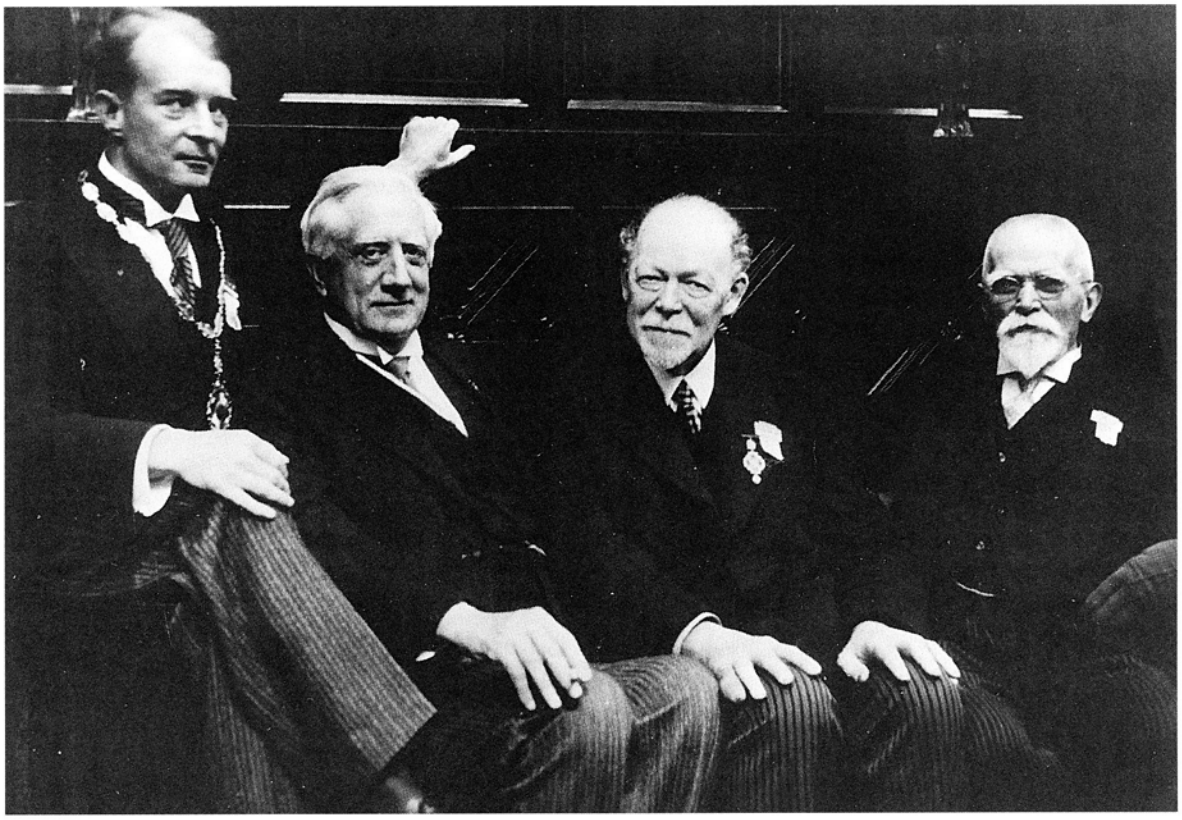


Fig. 1-7. Presidents of the International Congresses of Radiology assembled in Zurich: Hans Schinz (1891–1966), president of the fourth Congress held in Zurich in 1934; Gösta Forssell (1876–1950), president of the second Congress in Stockholm in 1928; Charles Thurstan Holland (1863–1941), president of the first Congress in London in 1925; and Béclère, president of the third Congress held in Paris in 1931. (Courtesy of Mlle. Béclère.)

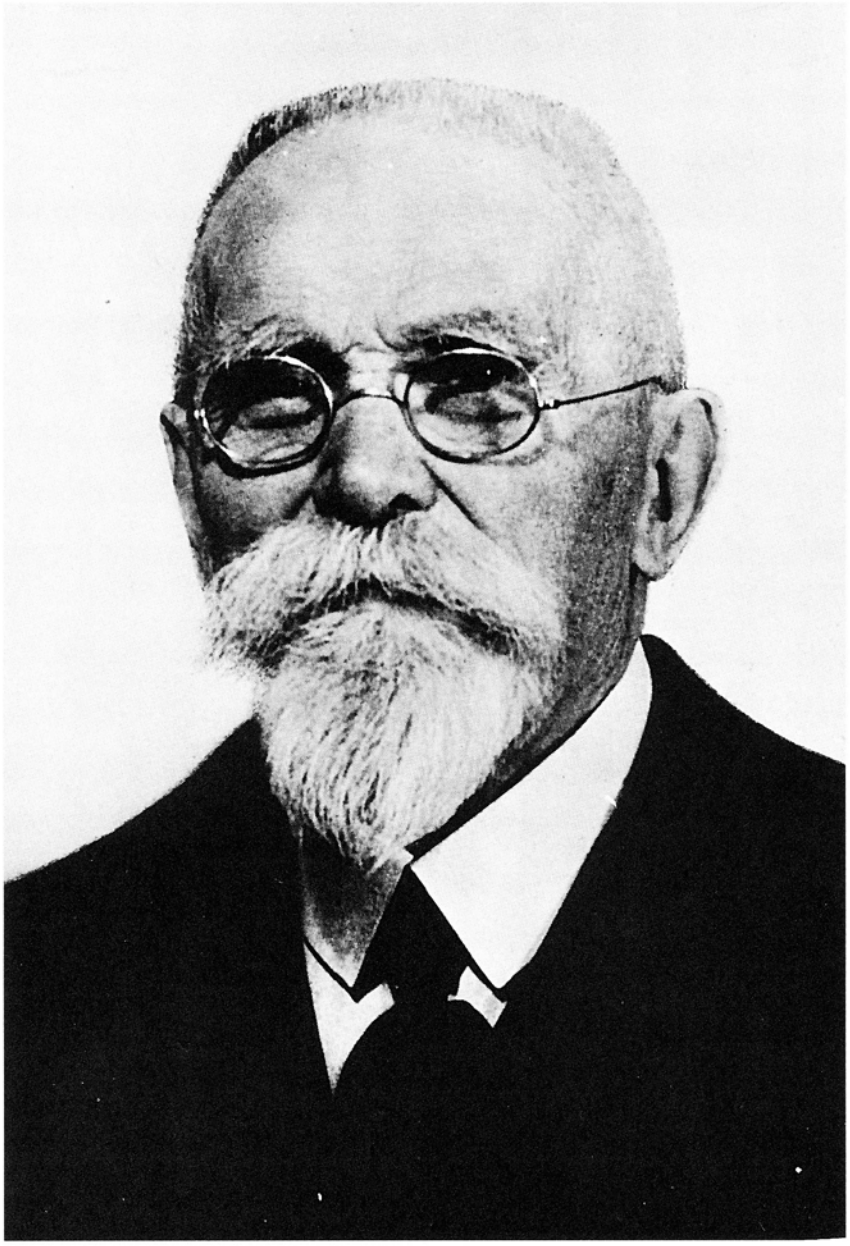


Fig. 1-8. Antoine Béclère in 1936.

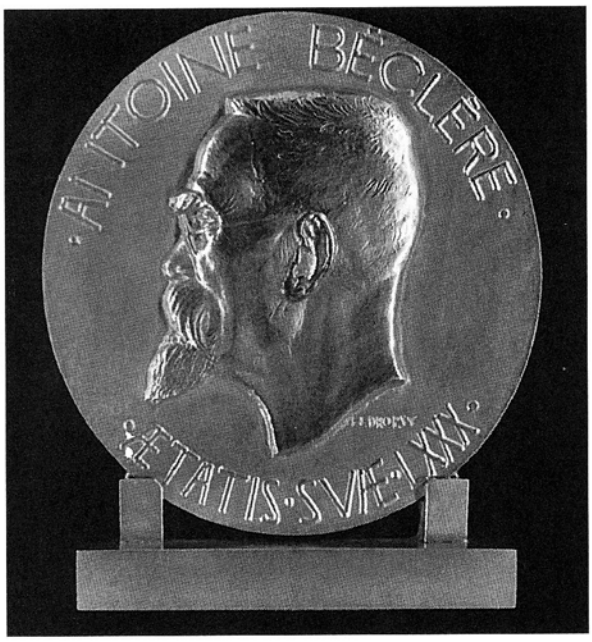



Fig. 1-9. Obverse of the Béclère medal, designed by H. Dropsy. (Courtesy of the Centre Antoine Béclère, Paris).

Seitz (1872–1961),[B] and Hermann Wintz (1887–1947)[B] of Erlangen. This consisted of intensive crossfire irradiation of the pelvis, lasting several hours, resulting in significant blood changes, and requiring narcotics to avoid radiation sickness.[53] The procedure was to be repeated after a few weeks. Béclère favored the fractionation also advocated by Regaud, foresaw the need of association of external pelvic roentgentherapy and intracavity radiumtherapy, and predicted the decline of surgery in the treatment of cancer of the cervix.

Béclère supported English radiologists' initiatives to renew international meetings. The first in a new series of international congresses of radiology took place in London under the presidency of Liverpool pioneer, Charles Thurstan Holland (1863–1941). At the meetings of the Executive Committee of the Congress, Béclère urged the appointment of a Commission on Measures and Units, composed of physicians and physicists, in order to seek unification of the variously adopted dose units in radiotherapy (subj. note 1.2).[56,57] "Our ambition," said Béclère, "is to be able to reproduce, as exactly as possible, the conditions of treatments done across the channel or across the Atlantic." The Commission was appointed, and at the second International Congress of Radiology in Stockholm (1928), it brought the desired unit, the internationally adopted *roentgen* (subj. note 1.3). The Third Congress (1931) was held in Paris and was presided over by Béclère, with all sessions at the Sorbonne.

Fig. 1-10. Mademoiselle Antoinette Béclère offering the Béclère Medal to Professor George Pfahler of the U.S.

In spite of his numerous presidential obligations, Béclère found time for a luncheon meeting of the Board of Chancellors of the American College of Radiology and was present as the College president bestowed on Marie Curie the society's gold medal. A memorable social event enjoyed by the Congress attendants was the lavish Exposition Coloniale being held that summer in the bois de Vincennes. In August 1931 Béclère reported on his experiences with radiotherapy of intracranial tumors to the Congress of Neurology held in Berne.[58] On this occasion he gave a follow-up on his first patient irradiated for a pituitary adenoma; by then she was thirty-nine years old and had recovered her sight. Although she was not married, she had become pregnant. "Someone," quipped Béclère, "will surely blame radiations."

In the early 1930s, Béclère was interested in the diagnostic and prognostic possibilities of the laboratory evaluation of hormone excretion by testicular tumors. In 1934, he attended the fourth International Congress of Radiology in Zurich, and transferred the ceremonial chain of symbolic X-ray tubes to his successor, Hans Schinz (1891–1966)[B] (Fig. 1-7). In later years he came often to the Radium Institute and made short visits to Coutard, Lacassagne, and Regaud for consultation on his ideas and on-going cancer research. He wore a black suit and hat, and gray gloves to protect his atrophic, keratotic fingers. He took short steps but moved quickly, followed by the loving eyes of all, for he embodied everyone's idea of a beloved grandfather (Fig. 1-8). In April 1936 in the gardens of the Sankt Georg Hospital of Hamburg, a stele with a lapidary inscription of 159 names on a beautiful memorial (Denkmal) was dedicated to victimized pioneers. "These noble martyrs," said Béclère, "did not speak the same language, did not have the same fatherland ... belonged to different races .... They were all ... devoted to the same mission: to fight

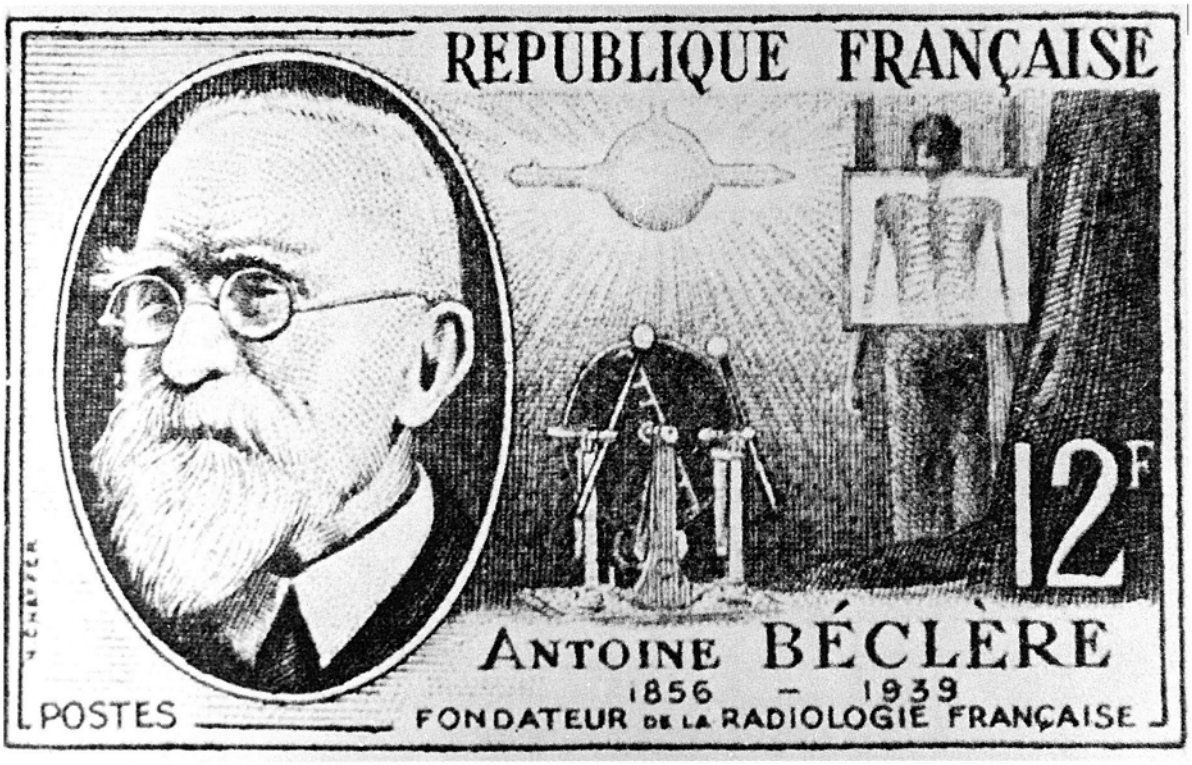



Fig. 1-11. Postage stamp of the French Republic issued in 1939 and featuring Béclère. (Courtesy of the Centre Antoine Béclère, Paris.)

disease and suffering, at the peril of their own life, with the help of the marvelous weapon put in their hands by Röntgen...."

A large number of honors were bestowed on the revered *maitre*: he became president of the Academie Française de Médicine and also of the Societé d'Eléctroradiologie Médicale which he founded; the Universities of Cologne and Zurich offered him degrees *honoris causa*; he was an honorary member of the Deutsche Röntgen Gesellschaft and an Honorary Fellow of the American College of Radiology. He was honored by innumerable other radiological societies throughout the world. Béclère was made a Grand Officier of the Ordre Royale de l'Etoile Polaire and a Commandeur of the Legion d'honneur.

In May 1936, shortly after his eightieth birthday, a scientific jubilee was held in his honor. His colleagues, friends, and disciples commissioned a special medal, the work of H. Dropsy, with Béclère's bas relief likeness on the obverse (Fig. 1-9). On this occasion, Professor Claudius Regaud made the presentation of a jubilee book in which affectionate tribute was rendered by many.[517] The German journal *Strahlentherapie* issued a *Festschrift* dedicated to him (vol. 57) with 129 papers from 29 countries, and the *Journal de Radiologie* gathered historical accounts in another special issue (vol. 20).

In 1937 the fifth International Congress of Radiology took place in Chicago. Béclère was unable to attend, but agreed to make a filmed address to the assembly. He used the occasion to call the attention of his audience to the inspiration he had received from Francis Williams of Boston: "This great pioneer of medical radiology," said Béclère, "deserves the recognition and homage of all physicians who entered after him the new life of radiotherapy."[71]

On 24 February 1939 Béclère died unexpectedly of a heart attack. He never joined the ranks of the superannuated, for he worked until that day. If he had lived only a little while longer, he would have seen his country at war for a third time.

Under the auspices of former presidents of International Congresses of Radiology, the Centre Antoine Béclère was founded in Paris in July 1950. Its purposes are to serve international relations in medical radiology, to provide facilities for bibliographic research, and to offer help to those seeking information and opportunities for education and training. The center is privately financed, and is housed at 7 rue Perronet in the seventh arrondissement of Paris, not far from the principal medical school. Creation of the center resulted from the initiative and generous support of Béclère's dedicated daughter, Antoinette Béclère (Fig. 1-10). Until his death in 1971, her brother,

Dr. Claude Béclère, was a supporter of this worthy monument to their father, a rare example of filial devotion. The center functions under a board of governors with representatives of French societies of radiology and from other countries. It has received the official recognition of the Executive Committee of the International Congress of Radiology. The center issues a bulletin, *Brèves Nouvelles du Centre Antoine Béclère*, and periodically has awarded the Béclère medal to prestigious figures in radiology: Hermann Holthusen (Germany), Ellis Berven (Sweden), Hans Schinz (Switzerland), George Pfahler (U.S.), Mario Ponzio (Italy), Oscar Soto (Peru), Gilbert Fletcher (U.S.), and J.A. del Regato (U.S.). In 1957, the French Republic issued a postal stamp honoring Béclère as the founder of French radiology (Fig. 1-11), a worthy addition to medical philately.

Béclère was a small vivacious man with fine judgement, motivated by intellectual freshness and insatiable curiosity. His relentless perseverance allowed for critical analysis and deliberate moderation. He was a calm, convivial person, capable of wielding courteous tenacity. He was a pleasant and humorous conversationalist and spoke with distinctive elegance and purity of speech. Although an intrepid controversialist, Béclère was a kind gentleman of noble character, delicate feelings, and simple tastes. He was fond of good music (Berlioz was his favorite—he often was heard humming fragments of the *Damnation of Faust)*. He was a happy family man who revered his parents and adored his wife and children, an affectionate friend, and the living image of everyone's generous grandfather.

Because of his discovery of the antivirulent properties of the serum of experimental animals and of humans inoculated with the Jenner vaccine, Béclère is recognized as one of the founders of immunology.[222] Edward Rist, a close associate of Béclère who became a member of the Academie Française de Médicine, paid him this posthumous compliment: "He was truly a great man, great in the nobility of his thought, in his inventive genius ... in the integrity and simplicity of his life, in his tenderness, in his matchless dignity and selflessness."[534] "He was," wrote Forssell, "one of those privileged beings who knew how to enrich the lives of those around him. Serene ambassador of the enlightenment, he gave us hope that a day will come when Reason and Charity will become the guiding stars of humanity."[52]

## Subject Notes

1.1 The list of those who considered themselves members of Béclère's school includes some of the best known names in early twentieth-century French medicine: Ribadeau-Dumas, Laignel-Lavastine, Ameuille, Lortat-Jacob, Charles Richet, Bornait-Leguele, Léon Decloux, Georges Paisseau, M. Mignon, L. Maurin, André Jousset, C. Dupinet, and many others.

1.2 The Congress authorities responded by appointing a nomination committee of British physicists charged with choosing representatives from various countries to work toward an agreement. The blue-ribbon nomination committee was composed of Sir William Henry Bragg (1862–1942), Frank Lloyd Hopwood (1884–1954), Edwin Augustin Owen (1887–1973), Charles Edmond Stanley Phillips (1891–1945), Alfred William Porter (1865–1939), and Sydney Russ (1879–1963).

1.3 The rather large Committee on International Units and Measures was chaired by Nobel Physics Laureate Manne Karl Georg Siegbahn (1886–) of Lund. Hermann D. Holthusen (1886–1971) of Hamburg, and Edwin Augustin Owen (1887–1973) of London, were designated Honorary Secretaries. Membership of the Committee included: Hermann Behnken (1889–1945) of Germany, William Duane (1872–1935) of the United States, Nevil Samuel Finzi (1881–1968) of England, René Gilbert (1892–1962) of Switzerland, Masanori NaKaidzumi (1895–) of Japan, Mihail Isaevich Nemenow (1880–1950) of the Soviet Union, Mario Ponzio (1885–1956) of Italy, Rolf Maximilian Sievert (1896–1966) of Sweden, Felix Sluys (1884–) of Belgium, Iser Solomon (1880–1939) of France.