Radiology on Postage Stamps, Part 4

Johannes Praestholm, MD, PhD
Inger Dissing, MD
Margrethe Herning, MD

This is the fourth and final part in a series of articles based on the 1986 exhibit on postage stamps relating to the science of radiology that Dr. Praestholm and his associates collected from around the world. Subjects of previous articles have been W. C. Roentgen (8:981–986), the exploration of the atom (8:981–986, 8:1203–1213), the Curies (8:1203–1213, 9:341–352), and radiologic equipment (9:341–352). The present article includes stamps featuring nuclear medicine, magnetic resonance imaging, radiologic institutions, and radiologic congresses; stamps used to support anticancer campaigns; and stamps proclaiming the peaceful use of nuclear power.

Index term: Radiology and radiologists, history

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1 From the Department of Diagnostic Radiology, 334, University of Copenhagen Hvidovre Hospital, DK-2650 Hvidovre, Denmark. From the 1986 RSNA annual meeting. Received and accepted April 24, 1989. Address reprint requests to J.P.

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The concept of isotopes was created by Frederick Soddy, an English chemist (1877–1956). In 1902, he postulated that radioactivity is the result of a spontaneous change of an element. Sweden, 270 øre, 1981.

Irène Curie, a French physicist (1897–1956) and the elder daughter of Marie and Pierre Curie, married another French physicist, Frédéric Joliot (1900–1958). Together they produced artificial radioactive isotopes. For these studies, they received the Nobel Prize in chemistry in 1935. France, 1.80 fr, 1982.

George de Hevesy, a Hungarian-Swedish chemist (1885–1966), used natural or artificial radioactive isotopes as tracers in chemical reactions. An autoradiograph with the occurrence of a tracer in a living cell is shown on this postage stamp. Sweden, 270 øre, 1983.

This tracer technique is also used in isotope scintigraphy to demonstrate the presence and location of pathologic metabolism in the body such as that occurring in malignant tumors. Federal Republic of Germany, 40 pf, 1981.
MAGNETIC RESONANCE IMAGING

The basis for magnetic resonance (MR) imaging is electromagnetism and electromagnetic waves. The history of both these phenomena is well described on postage stamps. Electromagnetism was discovered by the Danish physicist Hans Christian Ørsted (1777–1851). Denmark, 50 øre, 1951.

On July 21, 1820, Ørsted published his printed report in Latin, "Experiments on the effect of the electrical current on the magnetic needle" (1). Denmark, 80 øre, 1970.

In 1834, Ørsted visited his colleague, the famous German physicist and mathematician, Carl Friedrich Gauss (1777–1855). Federal Republic of Germany, 10 pf, 1955.

Gauss and Ørsted both have given name to a unit of measure for a magnetic field, G or Oe. German Democratic Republic, 20 pf, 1977.
Powerful electrical generators and superconductive techniques resulted in very powerful magnetic fields, as symbolized on this postage stamp announcing the Seventh General Conference of the European Society of Physics, Helsinki, Finland, 1.70 Fmk, 1987.

A practical unit for characterizing these powerful magnetic fields is named tesla (T) (1 T = 10^4 G) after Nikola Tesla, a Croatian-American engineer (1856–1943). Yugoslavia, 75 paras and 1.75 Din, 1936; Czechoslovakia, 25 h, 1959; USA, 20¢, 1983.
Electrical oscillations generate electromagnetic waves, which spread with the speed of light and are refracted and polarized in the same way as light. Federal Republic of Germany, 80 pf, 1983.

The theory of the electromagnetic waves was proved by the German physicist, Heinrich Hertz (1857–1894). Czechoslovakia, 1 Kčs, 1959.

The frequency of the electromagnetic waves (oscillations per second) is named after Hertz (Hz). Federal Republic of Germany, 10 pf, 1957; German Democratic Republic, 20 pf, 1957.

Electromagnetic waves of the frequency employed in radio-communication are also used in MR imaging. Federal Republic of Germany, 30 pf, 1969.
The Radium Hospital in Copenhagen is named the Finsen Institute after the Danish physician, Niels R. Finsen (1860–1904). Denmark, 30 øre, 1960.

In 1895, Finsen introduced light therapy for the treatment of lupus vulgaris, thus founding radiation therapy (2). Faroe Islands, 250 øre, 1983.

A postage stamp of the Norwegian Radium Hospital supported fund-raising by an extra charge. Norway, 20 øre + 10, 1931.

The Aliabad Hospital was featured on a stamp commemorating the 40th anniversary of the discovery of radium. Afghanistan, 10 pul, 1938.

The Monaco Hospital was also honored on the occasion of the 40th anniversary of the discovery of radium. Monaco, 1 fr 75 + 50 c, 1938.

The National Hospital in Reykjavik was commemorated on the occasion of its 50th anniversary. Iceland, 200 Kr, 1980.
The Radium Institute in Warsaw was inaugurated in 1913 in the presence of Marie Curie. Her statue is erected in front of this institute. Poland, 60 gr, 1967.

M. A. Novinskiy, a Russian veterinarian (1841–1914), in 1876 and 1877 transplanted a malignant tumor from one animal to another, thus founding experimental cancer research (3). USSR, 4 k, 1976.

N. N. Petrov, a Russian surgeon (1876–1964), founded the Institute of Cancer Research in Leningrad in 1926. Here, he worked with experimental, theoretical, and clinical cancer research. Since 1966, the institute has been called the Petrov Institute (3). USSR, 4 k, 1976.

The Antoine Béclère Centre of International Relationship in Medical Radiology in Paris was erected in the memory of Antoine Béclère (1856–1939), the father of French radiology, to promote international friendship in radiology (4). France, 12 fr, 1957.
RADIOLOGIC CONGRESSES

The first postage stamp announcing a radiologic congress that we have been able to find shows the portrait of the Italian physician and physicist, Luigi Galvani (1737–1798). Italy, 30 cent and 75 cent, 1934.

Galvani observed contractions in muscles in contact with two different sorts of metal. Alessandro Volta, an Italian physicist (1745–1827), later explained that this phenomenon had electrical origin. San Marino, 250 L, 1983; Italy, 1.25 L, 1927.

The regularly recurrent International Cancer Congresses under the auspices of the Union Internationale Contre le Cancer (UICC) are often announced on postage stamps. The eighth of these congresses was held in Moscow. USSR, 6 k, 1962.
The Ninth International Cancer Congress was held in Tokyo in 1966. On this occasion, two postage stamps in Japan showed advanced radiation therapy techniques (5). In stamps from other countries, symbols of radiation treatment of cancer and beautiful Japanese exteriors draw attention to the congress. Niger, 100 fr, 1966; Mali, 100 fr, 1966; Congo, 100 fr, 1966.
In Chile, it was announced that the 10th International Cancer Congress would be held in Houston. Chile, 0.40 € and 2 €, 1970.


The 15th Congress of the International Society of Radiology was held in Brussels under the sign of the “Atomium” sculpture. An extra charge for the stamp benefited the Belgian Red Cross. Belgium, 10 fr + 5 fr, 1981.
ANTICANCER CAMPAIGNS

Medical imaging and radiation therapy are central in the fight against cancer. Postage stamps advertise anticancer campaigns and raise research funds by means of an extra charge. France, 0.40 fr + 0.10 fr, 1970.

This stamp, along with the other two on this page, belongs to the category of stamps with scaremongering motifs. Austria, 2.50 s, 1976.

Some optimism, however, might be noticed in this hand's firm hold of the crab (Carcinus maenas). Niger, 100 fr, 1965.
The crab is the most common symbol of cancer. In two emissions of postage stamps, two different countries used a stylized crab, fashioned after a sculpture by Alexander Calder, an American sculptor (1898–1976). It was the subject of a stamp for a campaign by the Philippine Cancer Society Inc (top) and a stamp announcing the 10th Inter-American Cancer Congress, San Jose (bottom). Philippines, 10 s, 40 s, and 50 s, 1970; Costa Rica, 10 cts, 15 cts, 50 cts, and $1.10, 1970.
The heroic and successful fight against cancer is the topic of these four stamps. The struggle is dramatically symbolized on two postage stamps advertising a World Anti Cancer Day, sponsored by the World Health Organization. United Nations, 6¢ and 13¢, 1970.

Another hero seems better equipped for the fight. Pakistan, 40 p, 1979.

Athena, as the goddess of science, surprisingly fights cancer, appearing in the shape of a many-headed snake. France, 2 F 50 + 50, 1941.
The snake appears again in these Danish stamps, but it now symbolizes the good, around the staff of Aesculapius, as the logo of the Danish Cancer Society. Denmark, 10 øre, 15 øre, and 25 øre, 1929.

In a commemorative 50 years later, the snake symbol is stylized. On both occasions, an extra charge is allotted to the Danish Cancer Society. Denmark, 120 øre + 20, 1978.

Other cancer societies are supported by stamps showing worship of the sun, with the healing power of the sunlight symbolizing radiation therapy. Norway, 30 øre + 10, 1953; Algeria, 15 F + 5, 1956.
The legs of this stylized crab are shaped like receptors of an immune process. The red balls may symbolize tumor antigens as they are demonstrated in experimental cancer research. Israel, 0.15 shekel, 1966.

ATOMS FOR PEACE

Medical doctors have a special responsibility for warning against nuclear armament and nuclear warfare (7). It is natural to finish this series on radiologic science by displaying postage stamps with a message of peaceful use of nuclear power and stamps commemorating efforts to abolish the hazards of a nuclear war.

The American Atomic Energy Act of 1946, also called the McMahon Act after its author, Senator B. McMahon (1903-1952), moved the control of nuclear power from military to civilian administration and declared the policy of its use for civilian purposes (8). USA, 4¢, 1962.

President Eisenhower’s “Atoms for Peace” address to the United Nations General Assembly on December 8, 1953, contained the United States’ pledge “before the world...to find the way by which the miraculous inventiveness of man shall not be dedicated to his death, but consecrated to his life” (8). USA, 3¢, 1955.

In the Soviet Union, identical signals are given: Peaceful use of nuclear power is declared by the atomic symbol pictured over the Lomonosov University in Moscow and by the symbols of the efficiency of nuclear power, among other symbols used in medicine. USSR, 4 k, 1962.

The oath taken by physicians in the Soviet Union includes the sentence “Recognizing the danger which nuclear weaponry presents to mankind [I promise] to struggle tirelessly for peace, and for the prevention of nuclear war” (9). USSR, 6 k, 1962.
At an early stage, the scientists behind the atom bomb saw the inevitable danger of a nuclear weapon race. Especially Niels Bohr (10) and Albert Einstein (11) worked hard promoting ideas of a controlled international collaboration, instead of an uncontrolled competition for atomic power. Albert Einstein was commemorated for these efforts on the 25th anniversary of his death. The six postage stamps tell of the "Treaty Banning Nuclear Weapon Tests in the Atmosphere, in the Outer Space, and under Water, August 5, 1963" (8). Cook Islands, 12¢ and 12¢, 1980; Cook Islands, 15¢ and 15¢, 1980; Cook Islands, 20¢ and 20¢, 1980.
Frédéric Joliot-Curie led the team that first confirmed the basic principle of uranium chain reaction. After World War II, Joliot-Curie was active in left-wing politics, and for reasons of national security he lost his position as leader of the French uranium reactor in 1950. He died in 1958, the year Charles de Gaulle returned to power. De Gaulle gave Joliot-Curie a state funeral. "In death the glory that Joliot-Curie had brought French science transcended politics" (12). Frédéric Joliot-Curie has lent his name and portrait to postage stamps for peace in several Eastern European countries. Czechoslovakia, 60 h, 1959; Romania, 3.25 L, 1959; Hungary, 60 Ft, 1960; German Democratic Republic, 10 pf, 1980.
The International Atomic Energy Agency (IAEA) was established under the auspices of the United Nations in 1956, with the participation of 72 nations including the United States and the Soviet Union. United Nations, 3¢ and 8¢, 1958.

The emblem of IAEA is the atom model framed by the laurel wreath of the United Nations. This emblem decorates postage stamps announcing conferences of the IAEA. Yugoslavia, 25 Din, 1961.

The purpose of the IAEA is mutual technical assistance, research, and exchange of knowledge within the peaceful utilization of nuclear power. Finland, 0.30 Fmk, 1970.

Health (saude) is especially named on this postage stamp announcing the 20th General Conference of IAEA in Rio de Janeiro. Brazil, Cr$5.20, 1976.
The supreme object of IAEA is the atomic power security and prevention of military exploitation of the results of IAEA. This peaceful objective is symbolized in these two postage stamps by the dove of peace. Mauritania, 200 f, 1967; India, 1 Re, 1979.

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REFERENCES