8. Discussion

The postage stamps devoted to scientific themes play a vital role in promoting positive attitudes toward science on the part of the general public. (De Young, 1986, p. 2)

Previous academic research has been conducted to gauge the communication potential of the postage stamps of a few specific countries and some regional bases. This research concentrated on such issues as geopolitics and the creation of national icons, particularly at a political level. But none had specifically looked at how science messages are communicated. This has been the opportunity afforded by my study. Having defined what I believe constitutes a science message on a stamp I have used a case study approach to answer ‘how’ and ‘why’ science and scientists are represented on postage stamps. My focus has been investigating the subject as a historical and contemporary phenomenon, examining the context and meaning of the science messages being communicated to the public. Science has been a message theme of postage stamps for approaching 90 years, and it is being adopted more frequently as postal authorities increase the number of postage stamps being issued. In addition to the increasing number of stamps being issued, I have shown that postal administrations are proportionally increasing the number of science themed stamps in general. As discussed in Chapter Three, more than one in ten of all stamps published during the last five years shows an aspect of science to convey its message, compared to the long-term average of one in 14. Science as a theme registers with the public and is in keeping with the increasing public awareness of science shown through the increasing sophistication of the context to tell the stamps’ messages.

As an extension to Scott’s (1995) supposition that in the early part of the twentieth century European countries sought to establish national icons through their representation on stamps, Hymans (2004) explored the idea of the creation of national icons in the case of celebrities celebrated on European paper money, finding iconographic similarity across space and iconographic differences across time. Hymans did not look solely at scientists, but his conclusions have a lot in common with this study. He observes that single named celebrants are depicted with a traditional portrait, calling more attention to the named figure than the money itself. On banknotes, unnamed figures were grouped together, a trend shown on stamps that I have described as generic or aspirational figures. As it was banknote printers who were first employed to design and print postage stamps, there will be a common thread for the early issues, before the scientist appeared as the message carrier. Hymans saw a move towards a common design style developing on European paper money. I do not see that trend on postage stamps, which is perhaps not unusual, given the small size of a stamp; or it could be that the postal administrations themselves constantly change design
in order to maintain collector loyalty. There is reason to think that the images shown on postage stamps will be expected to be of lasting interest as stamps were collected from the beginning of their existence.

I have discussed at length my use of the mirror and lens classifications as a way of determining the how and why of a stamp issue. The image content determines the classification. Not only has the level and integrity of context within science messages on stamps increased over time, the understanding of the science message shown by the stamp designer has increased over time. This shows that the designer’s intent to engage with science has increased along with their awareness.

Over the past few decades there has been a change in the way science is conducted, from an individual to a research team approach (Searle, 2011). This may be a factor in the reduction in the number of individual scientist portraits that are used as the message image, these being replaced by the contextual image which tells the whole story of the team’s achievement. But the need for celebrity to personalise messages is clearly still current. This study shows that, except for the large techno-nationalistic grand design projects previously discussed, a lead figure is still heavily featured. Messages of significant achievements, particularly if described as breakthroughs — such as Medical Breakthroughs (Figure 8.1) — are acknowledged specifically identifying a named scientist as a textual focus. Each of the stamps in the figure has a dramatic image, (these are definitely lenses), but each also attributes the achievement to a single person. The text is small, but as a lens the viewer might pursue their enquiry by reading the text, albeit with the aid of a microscope.

There is another specific time development that should be considered. Many countries have featured the world wide web as a significant achievement celebrated at the millennium. The internet has become a content-rich source of information. I do not think it a coincidence that context on stamps has become richer since the mid-1990s. It seems reasonable to believe that stamp designers and stamp selection committees have used the internet as a source of data and inspiration.

Frewer, whose work focuses on Japanese stamps, is unequivocal: “postage stamps are a medium of communication” (Frewer, 2002). He does not differentiate between the subjects of messages. My initial thoughts regarding Stocklmayer’s (2013) communication model were that the postage stamp would only ever be regarded as a one-way information medium that typically informs the reader, listener or viewer, informs policy, and/or affects attitudes and possibly behaviour. This study has shown that the apparent intent of some postal administrations is to do more than just inform the viewer. Political messages certainly have informed policy. Stamp messages on public health warnings, for example, are intended to affect attitudes and behaviour as well as to build an awareness of science.
Nisbet and Scheufele perceive a “paradigm shift within the scientific community that involves a movement away from a singular focus on science literacy as both the culprit and the solution to conflicts over science in society” (Nisbet and Scheufele, 2009). They review how public health messages intertwine with the changing climate messages (although not necessarily on postage stamps), for “going broad” to generate attention and interest among non-elite audiences. As this study shows, the postage stamp sits at the intersection of politics and public values, raising the issues of the role of science and technology in everyday life.

The taxonomy I adopted has helped to illuminate my research. Half of the 4,800 science stamps I looked at had a named and recognised celebrant as the main image, many including a corresponding message stating that scientist’s achievement. Stamps identifying the scientist have been issued, usually on the anniversary of the achievement or the scientist’s life dates. The other half of the science stamps had representations of science that was not personalised by association with a particular. Such stamps and their messages are also event or anniversary oriented, contain a scientific image, or are institutional; for example, public health campaigns whose message was science in support of public health. Each country has a different profile when it comes to its choice of how to construct a scientific message. Within these two basic classifications,
it is possible to identify why the message was sent at that particular time. From my sample of ten countries, Germany and Russia celebrate anniversary dates the most commonly, France and Ireland the least frequently.

Gimmicks have occasionally been used to draw attention to a stamp’s message. Unconventional shapes are sometimes used, and I have even seen stamp surfaces impregnated with perfumes to attract attention. Russia has issued three stamps printed on aluminium film to emphasise technical advancements that are a by-product of space research. The development and use of context to put scientific achievements into perspective has been the most influential factor and change noted during this study. The use of photographs and the freeing up of design to dramatise the space race and the historical perspectives of the millennium stamps have been carried through onto today’s palette of message-telling options.

The research questions

1. What does the representation of science and scientists on postage stamps convey about the political and cultural imperatives of a country at the time of issue?

As discussed in Chapter Two, several researchers have described how stamps have been designed to establish icons to represent a country, (Altman, 1991; Scott, 1995) with these icons becoming a part of the culture. My study has focused upon particular political messages using science as the vehicle. The ten countries studied all have a different profile when it comes to using science as the message carrier, as was suggested by Petress (1991). The political imperatives have been studied in depth in Chapter Four. What was particularly noticeable was the dearth of science on stamps in Russia following the deaths of Stalin and as a result of the dissolution of the USSR in 1991. China has exhibited a similar pattern of not issuing science stamps during the Cultural Revolution, which is understandable in the light of what was happening, but with a complete change after the death of Mao Zedong. Such circumstances were predicted by Raento (2006). Major changes in approach are not discernable in the more established countries of the west. Cultural aspects, as explored by Kress and Van Leeuwen (2006) and Scott (2005) are, however, apparent when dissecting stylistic and taxonomic differences, country by country. The established European countries were those who, in the eighteenth and nineteenth centuries, sought additional colonies for trading opportunities and dispatched mariners and explorers. Great Britain, France, Germany, Spain, Portugal, Holland, Poland and Russia
expanded their empires, and countries like Australia, New Zealand and, to a certain extent, the United States were initially explored, subdued and colonised to gratify European ambitions. Many of these historical facts have been recorded on postage stamps reflecting key events in messages designed for civic education and nation building, as suggested by Stoetzer (1953). The seamen and navigators who conducted voyages of discovery were the polymaths of that world and were later followed by explorer-scientists of various disciplines who undertook the exploration of the land masses.

These same European countries and China had a history of scientific study and therefore access to a range of local celebrities whose achievements, if recorded on stamps, fulfill the criteria for recognition at a national level. Reminding the public of scientific achievement fulfills the message roles in a historical context and celebrates those achievements on a local and international basis. Series of stamps honouring specific scientists are issued regularly over time by all postal authorities to confirm the beneficial aspects of science to the public. Lorimer and Scannel define “mass communication as a means of providing information, images … to large numbers of people … choosing to attend to an information source” (Lorimer and Scannel, 1994). I would assert that the postage stamp is such a form of mass communications.

The case studies in this study illustrate how specific themes are developed and sustained for a country to advertise its objectives and place in the world. One-party countries have used the postage stamp to directly publicise political issues and ambitions, as typified through such statements as Five Year Plans. Stamps have also been used to promote priorities in scientific achievement, pitting one country against another. The message of science supporting the general public is also publicised through public health issues prevalent at the time of issue.

My taxonomy has shown that half of all science stamps utilise a named and recognised scientist, very often a portrait, to focus their message. The other half use images of science in abstract and may use generic figures to illustrate how the science is being promoted. Generic figures are used when the message is aspirational and looking forward to a science-enriched world. The Royal Society ad hoc Group (1985) recognised that “subliminal sources of scientific information can make a significant contribution to public understanding that extends well beyond overtly scientific items” (Royal Society ad hoc Group, 1985, p. 33). Stamps are in this category.

Within my research I have raised the time of issue as an important factor. Science on stamps has been a reality for 90 years. Science has certainly changed over that period and its representation has had to change and develop. Much of the data I have been examining is historical. The images and context used are pertinent to the time the stamp is issued. That does not mean that they will be readily understood at a later time or by a later generation.
I have conducted two small-scale surveys in relation to determining the
applicability of the mirror/lens argument. My evaluation of mirror/lens is biased
by my familiarity with the data set and the historical circumstances of the stamp
issue. At the time of issue, the context will have been meaningful reflecting
what the designer expected to be understood from the message they were asked
to convey. These surveys and the wide span of results on a mirror/lens scale
recorded by the participants confirmed that how the images are viewed is very
subjective, context and time are interrelated. A mirror or lens judgement needs
to be made with understanding of the time, space and social context. This is
too stringent a requirement to be used as a firm classification method but is
nevertheless fruitful in determining designers’ intentions to reflect reality or
challenge perceptions.

2. Are there constraints and/or conventions imposed
on the stamp issuing authorities which predicate their
publication of scientific constructs?

There are a few constraints to the subject matter that might be published by
postal authorities. We know that the issuing authority is enfranchised, through
its policy statement, to send positive messages that reflect well upon the country.
Negative messages are not deliberately sent, although many aspects of the impact
of climate change have been shown over the past 20 years reflecting the concern
the world purported to be showing at the time, before change of leadership and
political reality framed new agendas, as recorded by Taylor (2012). Some of the
approaches to sustainability have also been featured, such as wind turbines and
solar panels. The public face of concern, such as public service sustainability
and Earth Hour, has been published, but there is no discernable issuing policy
over time, reflecting postal administrations’ uncertainty as to what is important
at any time.

One constraint upon the subject matter might be the time taken to develop a
stamp issue. From my discussions with three postal administrations, I learned
that development for an issue is scheduled over a two-year period. The inhouse
authority research team will have, possibly with prompts from the general
public, determined which events and anniversaries fall two years hence, in
order to start a preliminary plan to allow time for institutional consultation as to
how the event or anniversary might be celebrated. The 2010 Great Britain 350th
anniversary of the Royal Society, is an example of joint development between
the Society and Royal Mail to celebrate ten scientists in a set each representing
a significant contribution within a 35-year period. Celebration of significant
historical events are criteria defined for the postal administrations as an element of their charters. Rose (1980) emphasised this function as an important aspect of the design process which has continued to the present day.

The main constraint has been the fact that living persons are generally excluded as stamp subjects. What also appears to be a real concern for the postal authority is to have established a person’s credibility and place in history before he or she is commemorated. It is obvious that in being able to commemorate a sporting achievement the following day, as has been achieved by a few authorities, that pre-planning of formats and distribution have overcome the stamp development time lag.

Because of the changing technologies that are available to the issuing authorities, I have suggested that opportunities for bespoke stamp issue are a reality. Authorities such as Royal Mail and Australia Post have observed the rule of not celebrating living persons other than the Royal Family. But the world is changing and, according to Jeffries, “in recent years the rule has not so much been bent, but more twisted, snapped and then brushed under the carpet (Jeffries, 2011). I note that Australia Post has issued an annual series of stamps, titled Australian Legends, and declared the selection criteria for this award would ensure it be given to “inspirational” living Australians who “exemplify tenacity, imagination, perseverance, devotion, integrity and compassion” (Fahour, 2012, p. 2). Directly applicable to my study are the sets of five stamps, Australian Legends Award — Medical Science 2002, and Australian Legends Award — Medical Specialists 2012, in which photographic images were taken specifically for Australia Post and complemented with descriptive booklets. The use of scientists’ images hardly elevates them to the status of celebrity sports stars, but does place science securely within the real world.

3. Are changing perceptions of public awareness and attitudes to science mirrored on postage stamps?

In general, the evidence provides a positive answer to this question, although it might be a fairly recent phenomenon for some countries. Evaluating the messages contained within the millennium issues, I was struck by the lack of representation of concern for what was becoming a critical political issue for the world, that of the changing climate and environmental protection. I have discussed this at some length in Chapter Seven, but note again here that these issues are mostly portrayed on stamps as a worldwide problem. Countries have not put their hands up to accept responsibility for the changing climate or put forward a local solution on their stamps.
The relationship between science and technology and society has changed over time. With the industrial revolution and the movement of people from a rural to an urban environment based upon manufacture, came the requirement that science be accommodated, learned across multiple disciplines as an everyday part of life. An understanding of science was encouraged through the establishment of scientific institutions that aspired to share their knowledge. Today it is expected that an acceptance of science by the general public is a factor in the development of nation building and improvement of lifestyle. These phases can be traced through the images of science on messages within postage stamps. There has been a change from the use of the portrait of a famous scientist towards a contextual interpretation of scientific achievements, although it appears there is little opportunity for the development of dialogue between the stamp issuing authority and the users of postage stamps. There is little and limited anecdotal evidence that some themes are unpopular on stamps — bad news or an overtly technical approach to telling the message — that might cause less public acceptance and stamps being rejected in the post office itself.

It is true to say, however, that there has been an international move to engage the public with science through any number of mechanisms, which include public controversies over science and technology; science communication in the mass media; science museums, aquaria, planetaria, zoological parks, botanical gardens, fixed and mobile science exhibits; science festivals; science fairs in schools and social groups; science education for adults; consumer education; public tours of research and development parks, manufacturing companies; science in popular culture; and science in textbooks and classrooms. To which, one might add messages on postage stamps.

As far back as 1972, it was remarked that the stamp designer must use images to clarify abstracts, such as the idea of evolution. I believe the increasing trend of adding more meaningful context to stamp images is a reflection of the increasing public awareness of science. Today’s public expectation of science, as enunciated by Masters (2012), means that a stamp has to show integrity and validity. I have not been able to put a definitive date on when the more appropriate scientific context appeared more regularly on postage stamps, but this looks to have occurred in the mid-1990s.

Great Britain’s Postmaster General Benn in 1965 expressed his objective of having a more liberal subject policy (Chapman, 1994). Parker endorsed this objective in 2011 as an extension of public patronage to the arts. There is some indication of this occurring where the postal administration has used formal portraits of scientists to illustrate their message.

Stamps are generally printed for the most common of the services that a post office will expect to provide, to simplify over the counter sale of the required
postage fee. It is logical to expect, therefore, that most viewers will only ever see one stamp on an envelope as it passes through their hands, and upon delivery. As we have seen, some authorities have adopted a policy to convey a particular message through a single stamp, while others use a set of stamps to provide a more complete sequence of images to tell its message. But it has to be assumed that single stamps from the set will be used by the general public, so each stamp in the set also has to tell a meaningful part of the message. There are opportunities to tell a more expansive message when the design can be incorporated into a miniature sheet, which might contain multiple copies of one stamp or different images and also use the selvedge, (any space outside of the stamp perforations), for explanatory image or text. But even then, individual stamps will be torn out of the miniature sheet for everyday use. It will only be the stamp collector who will regularly reconstitute a miniature sheet of the used stamps after they have completed their primary function. The same collector will probably have also sent the full sheet adhered to an envelope to a colleague collector if stamps that have been fiscally used are their objective.

Science and technology on stamps is communicated by designers who are not scientists, although they may be guided by institutions and professional communicators. This may be one reason why mathematical and chemical formulae are not that common. I suspect, however, that this might be because of the low level of visual appeal and a negative attitude towards mathematics. There have certainly been instances when formulae have been challenged after publication. The strong negative reaction to the perceived error on the 2008 Gerty Cory Nobel Prize acknowledgement (Figure 6.63) is evidence that various publics are well aware of the science images on their stamps and the ideal of the accuracy of the science.

Traditional frontiers between communicative contexts in science have been adapted to meet the challenges of the physical constraints of telling a message in a limited space. Stamp designers have been able to use some unexpected technologies in the telling of the message. Holograms have been used to show more than a single image on the stamp’s surface, and stamps have been coated with a scent that is released when the surface is scratched. The only instance of which I am aware that the stamps in a set have been cut to simulate a jigsaw is the Great Britain Darwin birth bicentenary celebration of 2009, which illustrates the complexity and diversity of evolution. The association of science developments with everyday artifacts is possible because of the public’s increasing familiarity with the beneficial byproducts of scientific research.
4. Have stamps been issued that contribute to the public awareness of science?

The increasing use of context has led to science stamps of the lens type that encourage people to look at the message to understand what it is saying, to think, to be curious about science, and to stimulate an engagement with science through the contextual design. Stamps as lenses are used to tell important public messages, although the reception of that message will be an individual response. I have selected a few stamps that I believe have contributed to the public awareness of science. The choice is subjective and seems to follow several formats. One consists of retrospectives with images of several discoveries or inventions that encapsulate the message to be told. Irish Post have, for example, named and shown with context the achievements of four scientists they proclaim as Irish, whereas historically they have been identified as English. The Chinese set of ancient implements shown as the early versions of today’s technologies seeks an awareness of science and technology. The second format is different. I have selected two stamp sets that have used a naïve, some might say childish approach to illustrate Archimedes Principle that represent an educational and scientific awareness to solve everyday problems. The Russian stamp selected, uniquely, shows adults enjoying an industrial training session.

Every commemorative science stamp raises a scientific issue. It will be in the eye of the beholder to determine whether it raises an awareness of science.

Public health issues have been highlighted on postage stamps as a separate genre. They are science in that they are designed to promote awareness in the expectation that medical science will provide a resolution to the problem. Techniques of medical examination have been explained through the images and text. I have not highlighted issues such as drug abuse, AIDS and SARS, although the images used have been to the point, and certainly raise awareness of a problem, although not necessarily declaring a solution.

Emergent themes

There are a number of additional emergent themes in the representation of science and scientists on postage stamps:

1. Science on postage stamps is used as a communication device to convey messages to the general public, although these messages may be designed to tell a variety of different stories.

2. Stamps convey good news, only very infrequently will bad news be publicised.
3. Countries show significant differences in their approaches to the representation of science on postage stamps.

4. As governments have looked to the development of science and technology as a legitimate political theme, science has become a subject theme in its own right.

5. The representation of science is subject to framing to meet changing political requirements.

6. The impact of female scientists has been largely ignored on postage stamps, as was pointed out more generally by Davies (2010).

7. Public health issues, although not strictly science, have been publicised on stamps and have been brought to the publics’ attention with some innovative, dramatic images. The general theme has been that of science finding a solution to the issue.

8. Postage stamps have been used as a charity collection medium over many years, to further support victims of disasters and public health issues.

9. Postage stamps, and science on stamps, have become available in a variety of guises as the postal authorities seek to optimise revenues from stamps at a time of fewer mail items being carried through the mail, prepaid through the purchase of a stamp.

10. More postage stamps are being issued, year-on-year, including science on stamps.

11. Postal authorities may also use series of issues to enforce the message over time.

12. The integrity of design within a set of stamps appears not to be jeopardised to cater for the international market.

13. Changing technologies may influence design and the messages to be told on future stamps.

14. The identification of the message on a stamp as a mirror or a lens has proved a useful way of looking at stamp images and the designer’s expectation to engage with the public.
1. Science on postage stamps is used as a communication device to convey messages to the general public, although these messages may be designed to tell a variety of different stories.

The earliest stamps used a national icon such as the monarch, a coat of arms or a flag, as the image on the label that prepaid the postal fee. In 1888, however, the Colony of New South Wales changed the use of the image on a stamp in order to commemorate a specific event. New South Wales celebrated the centenary of the First Fleet’s arrival in Australia and used images that recorded Sydney scenes, local flora and fauna and figures of historical interest within a set of eight values. Captain James Cook was featured on that set as the discoverer of Australia. The message was directed to the western world at the end of the nineteenth century. The message completely ignored the fact that the country had been inhabited by the original Australians for perhaps as long as 100,000 years. History has shown that this message, reinforcing the concept of the ruling elite of the time, causes hostility in some. But in terms of my research, the issue of the stamp had seemed appropriate at the time to the postal administration of the time.

Discussing science on stamps, Ivor Masters of New Zealand Post told me that “the stamp’s message must be kept relevant in today’s world”. New Zealand Post has as an objective that the New Zealand stamp will always convey a message that “has world-wide integrity and validity”.

2. Stamps convey good news, only very infrequently will bad news be publicised.

I have discussed this briefly in Chapter Four. The one stamp I could find that told bad news is shown as Figure 4.76, which records *The fifth anniversary of the Chernobyl Power Station disaster* and reflects through its image radioactive particles killing vegetation. Not recording bad news items is one criterion that distinguishes stamps from other media. I have related within my study how the Great British 1998 set of *Endangered species* proved unpopular with the British public because the graphs behind the image showed a decline in species numbers. Subsequent available market research had indicated that the buying public was not keen to buy stamps that conveyed negative news and this appears to have influenced future Royal Mail policy.

The evidence from this study supports Clapper (Barr 1993). The buying public did not expect to be confronted with a negative message and did not like the way the message was framed. Attitude reinforcement is also apparent when considering the frequency with which postal administrations celebrate scientific achievement on a regular basis on anniversary dates.
3. Countries show significant differences in their approaches to the representation of science on postage stamps.

Postal administrations adhere to their stated policies in their issue of postage stamps. They continue to promote science issues that might be described as nation-building, or a form of civic education, building a sense of national identity through recognition of local heroes of science and acknowledging scientific achievements that have increased public wellbeing. The regular publication of science and scientists on stamps contributes to the continuing stories which parallel the country’s aspirations.

The composition of the message on the stamp includes not only the interrelationship of semiotic signs but also the expectation that science will be included when appropriate. The four Antarctic authorities, essentially recording the activities of the scant human population of the continent resident for scientific research purposes, record the unique flora and fauna. This somewhat limited palette of visualisation has resulted in an Antarctic style of representation, (see Chapter Four). One might, cynically, argue that the flora and fauna issues are aimed at the thematic collector, but this does not invalidate the intention of reflecting the real world, a mirror of the Antarctic.

4. As governments have looked to the development of science and technology as a legitimate political theme, science has become a subject theme in its own right.

This premise has been argued in Chapter Four. Additionally, most countries have established a regular publishing schedule to recognise prominent citizens. Increasingly, these citizens include scientists.

5. The representation of science is subject to framing to meet changing political requirements.

Public policy and government ambitions directly conveyed to the general public through messages on stamps has been examined. The publishing of targets for Five Year Plans is an obvious example. The framing phenomenon has been discussed in Chapter Seven with particular regard to the changing climate, in which I have been able to show a pattern of messages consistent across countries that illustrate Taylor’s (2012) hypothesis. Taylor has shown that the changing climate was a subject being discussed freely in the 1980s, but
which lost currency as solutions became mired in politics and became a subject that was ignored for 30 years. The story on stamps has been consistent with Taylor’s contention across the countries studied.

6. The impact of female scientists has been largely ignored on postage stamps.

Some early research preceding my definition of a hero of science immediately suggested that some male scientists have a truly international appeal and profile deemed suitable for carrying a science message. Apart from Marie Curie and Florence Nightingale, female scientists have only been recognised on a local stage, and the actual numbers are small. In Chapter Three, I have shown that, to the end of 2011, only 62 female scientists have been shown on postage stamps, compared to some 2,000 named male scientists. Approximately half of the named female scientists have been celebrated on the stamps of Russia and the United States. Generic female workers have been used, principally by East Germany and China, within political messages emphasising the need for females in an increasingly science-dependent work force, but the numbers are still small. East Germany’s 14 representations of female generic figures are more that one-third of the total. If there are any themes inherent in the use of female scientists it is in showing their role in medical practice and as Nobel Prize winners.

The participation rate of women as scientists has increased with time, particularly since the middle of the twentieth century. This means that there are not yet many achievements on the calendar of anniversaries for celebration. Another factor might be the fact that there has been a written, (in the case of the United States), or unwritten convention not to celebrate living persons on postage stamps. Russia broke the mould when, as part of its advertising of space successes from 1961, female cosmonauts were given equal exposure to their male colleagues and were celebrated on subsequent anniversaries of the flights. Australia is one other country that has rescinded that convention and has featured female scientists in each of its Celebrating medical science sets of stamps since 1995. The ratio of female representation to male has been 2:3 in the Australia Post issues of 2008 and 2012.

The United States has marked the recognition of its three female Nobel Prize winners for science with recent issues in 2005, 2008 and 2011. The earlier stamps have been shown in Chapter Six.
7. Public health issues, although not strictly science, have been brought to public attention with a range of interpretations to illustrate the message being conveyed on the stamp.

As discussed in the previous section, specific public health issues such as AIDS and the SARS epidemic have been raised by a number of countries. Cancer and the harm caused by smoking have also been brought to the public’s attention on stamps. However, no country is going to want to point out deficiencies in its lifestyle to the world in general until a resolution has been found. Stamps are, in a real sense, advertisements promoting the country. Stoetzer described “the stamp as a vivid expression of that country’s culture and civilization and of its ideas and ideals” (Stoetzer, 1953, p. 1).

8. Postage stamps have been used as a charity collection medium over many years, more recently to further support victims of natural disasters and public health issues.

New Zealand and France have for years issued stamps with a charity premium included in the service sales price, with these premiums going to specific health initiatives. The United States Breast cancer research stamp of 1998, (Figure 4.78) has raised US$76.3 million for research.

9. Postage stamps, and science on stamps, have become available in a variety of guises as the postal authorities seek to optimise revenues, from stamps at a time of fewer mail items being carried through the mail, pre-paid through the purchase of a stamp.

The stamp units of the postal services are expected to be profitable. Richard Breckon, the historian of Australia Post, explained to me that every issue is expected to generate revenue of AU$2 million. The stamps themselves are issued in a variety of formats including: individually over the post office counter; in a stamp booklet of stamps with the same denomination; or as a set in a package in the post office or for sale by direct mail. The stamps may also be available in a presentation pack, expected to be a casual purchase as a gift for someone else, in a prestige stamp booklet. These two last items contain background information about the stamp issue and its design. The postal authority also publishes an annual yearbook with all the stamps that have been issued in that year.
Direct mail purchase is available for all these formats. Each new format allows the designer to move to a more sophisticated level of the message being told and afford, in the case of the yearbook, an occasion to explain the ideas behind their design.

Philatelists are targeted as potential purchasers of each format and Australia Post, for one, has experimented with minor modifications to the standard stamp issue, by printing a few copies of the subject stamp without perforations, for example. In this study I have made no distinction as to the source of the science stamp.

To optimise the revenue for a particular stamp issue, the postal authority may additionally produce articles following the stamp theme, using copies of the images, such as jigsaw puzzles, umbrellas, and drinking mugs. Taking this into account, it is possible that some stamp subjects might be ignored if the subject does not lend itself to an additional revenue opportunity.

10. More postage stamps are being issued, year-on-year, including science on stamps.

The taxonomy results described in Chapter Three show the increase in the numbers of stamps being issued annually compared to the average over many years and the increases in the past ten years. It is expected that this trend will continue. Jones concluded that “more stamps are celebrating popular culture than was the case in the past and less celebrating high culture” (Jones, 2004, p. 80). Humour has been used, but has not necessarily proved to be successful. The increasing use of photographs seems to suggest a realism that keeps pace with the growing awareness of the scientific world to place science in context.

11. Postal authorities may also use series of issues to enforce the message over time.

I am able to discern some pattern in an individual country’s issuing policy. All countries publish commemorative stamps to celebrate annual events and activities, such as religious festivals, on an annual basis. In the shorter term, three to five years, for example, a country might explore a topic as far as it remains topical and valid. I am thinking here of Great Britain’s Action for species series, each of ten stamps that were issued annually between 2007 and 2011. Other series which define a country over time include, for example, the US Postal Service celebrating Distinguished Americans, including scientists, for its definitive stamps, and its current series of American scientists sets of four stamps. Other administrations follow this lead.
The Russian Post Office, while issuing single stamps for more scientists than any other country, has sustained a perspective upon airplanes through its several issues and series celebrating the design prowess of its aircraft designers in addition to its celebration of space research.

12. The integrity of design within a set of stamps appears not to be jeopardised to cater for the international market.

It might be expected that a country issuing a set of stamps of different values would use images to suit each of the service levels. I have seen no evidence within a set of stamps that a well known image has been selected for the prepayment of international mail instead of a less known image. However, some single stamps and miniature sheets are priced at a value that will be applicable for international use or the specialist collector.

13. Changing technologies may influence design and the messages to be told on future stamps.

The policies of the individual postal authorities have been shown to be different. Some issue a set of stamps with different images to develop the message being told, rather than telling the message with a single image. Postal authorities may also use series of issues to enforce the message over time. The integrity of design within a set of stamps appears not to be jeopardised to cater for the international market. By this I mean, I can not discern that the higher, international service fee stamps change the image within the set theme to be obviously for overseas consumption. Individual commemorative stamps are different and as one-offs it might be argued that these messages are designed for a foreign audience rather than a local one. Changing technologies may influence design and the messages told on future stamps.

It is evident that digital technologies are being trialed by postal administrations that will reduce the time frame for the development of new stamps which might then keep pace with changing events in order to constitute a living history. Postal administrations are seeking new markets for stamps and living histories might constitute new opportunities. Royal Mail has already implemented augmented reality within a few stamp issues and it is possible that further tests will lead to it being used regularly. This will require integrating message design across a variety of mediums and possibly change the stamp image to become the vehicle to a smart device.
14. The identification of the message on a stamp as a mirror or a lens has proved a useful way of looking at stamp images.

As my own familiarity with the representation of science has developed, I have been able to appreciate the mirror or lens perspective to confirm how and why a stamp image has been designed. That familiarity has given me a historical perspective that is not necessarily available to an inexperienced observer. Two small surveys, in which I asked participants to define a few science stamps as either mirrors or lenses, showed a complete range of answers. The crucial factors were time and the clarity of the image. The message on a stamp is geared to the time and circumstance of its issue. The impact of an image of the first successful moon landing is greater in the immediacy of the event than when it is celebrated 50 years later. The survey suggested a busy design that requires unraveling will be determined to be more of a lens than a mirror.

What of the future representation of science and scientists on postage stamps?

Bespoke stamps, printed at source, have been in development for 20 years to produce receipts for postal service over the counter or, increasingly, through kiosks at or near the post office. At this time, touch-screens are replacing the older vending machines that delivered a set value stamp from a coil of preprinted stamps. The new vending mechanisms allow for the weighing of an article and prepayment for a particular item.

I have mentioned how the privatisation of postal services has introduced the opportunity for new players to experiment with how science is represented. Two other developments are significant, the first being the almost instantaneous printing of stamps, so far only used to celebrate sporting successes. Another option comes from a revenue-making activity of the post office who offer the personalisation of postage stamps, through which anyone can have a personal image printed alongside a valid postage stamp for the dispatch of regular mail items.

The New Zealand postal administration has printed specific company advertisements, called commercial advertising labels (CALs). The CAL is valid for postal use at the same standard service fee as a stamp. There is no reason to suggest that unique science not be publicised, or a particular scientist be used to promote a commercial activity.
As discussed earlier, issuing authorities are operating in an environment where less conventional mail is being sent, although with increasing internet the need for conventional parcel post, and labels, is growing.

I believe the threat to the philatelist market from the counter-printed stamp is the fact that the label can be of any value, so that the collector desires to acquire a complete set will be frustrated by an infinite number of possibilities. Commentators have suggested that the changes taking place may have created a “feeling of anger and cynicism” (Deering, 2011). Deering observes:

The world is changing and the post office network must evolve with it. I believe there will be stamps for a long time to come, but just different stamps — perhaps mostly produced in a different way for a modern automated and self-service world. (Deering, 2011, p. 39).

There is a clear indication that in the twenty-first century the postage stamp is still seen as a potent marketing tool to extol the virtues of the state, and that science is a denominator in the equation. The number of postage stamps being printed on an annual basis is growing and the number of science stamps being issued is also on the rise.

One other opportunity exists for instantaneous stamp production. In 2000, during the Sydney Olympic Games, Australia Post made available, in most local post offices, a stamp that commemorated the Australian gold medal winner of the day before. The stamps were sold in sheets of 10 stamps, and included a head and shoulder portrait of the celebrant with their gold medal prominent as a part of the image. If it was a team medal, the whole team was shown. Details of the celebrants’ events were also included. It was a world first. Australia Post repeated the process for the 2004 Athens Olympic, the 2006 Melbourne Commonwealth Games, the 2008 Beijing Games, and the 2012 London Games.

During the London 2012 Olympic Games, Royal Mail was emulating Australia Post’s feat and showing its own “Team GB” winners on specially-issued stamps the day after their gold medal-winning events. With this issue, Royal Mail is moving the technology one step further, featuring, where possible, an action photograph of the gold medal winner performing. Australia Post is continuing its head and shoulders format, which now looks somewhat antiquated against the Royal Mail equivalent. What is important is that the application works, albeit that the background indexation of the stamp has been preprinted. Adding the icon, the image, is achieved digitally and almost instantaneously prior to printing and distribution of the postage stamp. The respected commentator Peter Jennings has written: “The convention of not showing living people, other than members of the Royal Family on stamps has gone forever” (Jennings, 2012). Jennings’ forecast has been proved true in the first few months of 2013,
when Royal Mail celebrated 50 years of Dr Who by publishing the faces, but not the names of 11 actors who have played the part, including those still living. The latest 2013 set of Eminent Britons has not taken the opportunity to include living persons. However, I can report that Royal Mail has celebrated the 2013 Wimbledon Tennis Champion, Scotsman Andy Murray, with four stamps in a miniature sheet on 8 August 2013.

I forecast that, subject to strict content guidelines and license arrangement, the time will come when commercial enterprises will want to issue their own personalised postage stamp in real-time to celebrate achievements. There is no reason to think that science and technology would not be included.

Privitisation of mail services has allowed non-governmental operators to publish their own stamps (receipts). In 2011, Deutsche Post/DHL issued a set of 12 celebrating German mathematicians of the twentieth century, with a strong focus on the theoretical number development of David Hilbert (1862–1943). One stamp, which I would have liked to include in Chapter Six, shows the dates that a theory of relativity were announced by Einstein and Hilbert, just five days apart. In 2012 CityPost Hannover issued a set celebrating the stepped reckoner of von Leibnitz (1646–1716) that looks similar to a conventional stamp, except that each stamp incorporates a tracking barcode. These NGO issues open a new source of study in the awareness of the history of science.
This text taken from *The Representation of Science and Scientists on Postage Stamps: A science communication study*,
by Chris Yardley, published 2015 by ANU Press, The Australian National University, Canberra, Australia.