

CHAPTER 1

INTRODUCTION

In the middle of the 19th century many countries around the world introduced postage stamps. Not long thereafter people started to collect stamps. Today philately is a large worldwide business and a popular hobby. It is common among philatelists to collect stamps by *topical* subjects. Topical collecting is the forming of a collection of philatelic material selected and arranged by subject, design or theme, rather than by country of issuance. For example, Spira published a paper on *Photographica* on postage stamps.¹ The paper lists photography-related stamps issued until 1979. In another publication, Miller covers the *history of optics* as featured on stamps.² Over the last two decades *holograms* have become a new topical subject in philately. It is now 25 years since a presentation stamp folder with a hologram was issued in P. R. China, The following year the first *definitive postage stamp* with a hologram was issued in Austria. Since then many countries have issued hologram stamps or souvenir sheets. Some countries have issued stamps or souvenir sheets with holograms on more than one occasion.

Up until now (2016) about 80 countries have issued holographic stamps and the total amount of different postal items with holograms is well over 450. During the millennium, 1999 and 2000 celebration, there was a peak in hologram stamps issued. In the beginning it was common that the holograms contained *3D images*. After 2000 hologram stamps are most often covered by *holographic diffractive foil* with for example stars or other repeatable patterns. Sometimes the foil is cut in the shape of a figure, for example, angels, fish, and sculptures. In addition, clear *transparent holographic foil* has been applied to stamps on, for example, butterflies and bugs. This type of foil can also be cut in the shape of for example an insect or any other figure featured on the stamp. In both cases, this means that the actual pattern within the hologram area on stamps *varies* between stamps in a particular edition. Generally it is assumed that all stamps in a particular edition are identical. Stamps with a difference (color, misprint, etc.) found in one or a few stamps in an edition are regarded especially collectable and could represent a very high value to stamp collectors. Stamps with figure-shaped holographic foil patterns are different from stamp to stamp and should not be regarded as variations. However, there are also hologram stamps with production mistakes, for example, a *missing hologram* on a multiple-stamp sheet with holograms. The hologram can have been *misplaced on a stamp* during production (hot-stamping technique is used to attach the holograms). The cut out of the hologram image from the holographic foil (kiss cutting) can occasionally have gone wrong resulting in slightly *different holographic images* on the stamp. This should not be confused with the above described contour-cut holographic foil of random diffractive patterns. More about hologram stamp variations and errors in Chapter X.

It should be pointed out that postage stamps to which a piece of *shiny foil* has been attached are not included here, nor stamps with shiny gold or silver dots, for example. Such stamps are sometimes wrongly described as “with hologram”. A postage stamp to which a hologram is attached or where the entire stamp is holographic needs to create *diffraction of light* when illuminated. When illumination and observation directions are varied, the hologram shows color variations. A 3D image or a random pattern can of repeated features can be visible. Some postal items have only holographic foil numbers or text attached. Such items are included as long as they show diffraction. Stamps with *iridescent ink* which behaves like holograms are also included here even if they technically are not holograms. When illuminating a stamp with iridescent ink, color changes are observed depending on illumination and observation directions.

Often *lenticular images* are often described as “holograms” by philatelists who are not familiar with the different techniques. A lenticular image is based on a completely different technique used to create 3D images or switching 2D images. Such a stamp is covered with a rather thick plastic raster with fine grooves. Postage stamps covered with the plastic raster are not really nice, nor are they easy to attach to an envelope or possible to be properly cancel. Lenticular stamps are not included in this book. A hologram stamp on the contrary is very thin, like a normal paper stamp, which can be attached to envelopes as any regular stamp and they can be cancelled without problem. After all, the purpose of a postage stamp is to be used for sending postal items.

Provided in this book is a *chronological review* of worldwide issued postage stamps and souvenir sheets with holograms. A description of each stamp is provided with photographs of all postage stamps and souvenir sheets. In addition official and special first day covers (FDCs) are presented and described. It is common that a *cachet hologram* has been attached to an envelope (FDC or commemorative one) when normal postage stamps are issued. Such FDCs are also included. The majority of issued philatelic holographic items are included, but some cards or other printed items with a hologram attached may have been overlooked. Other documents or items with holograms, for example, telephone cards, tax stamps, revenue stamps, etc., are not included.

The use of holograms on postage stamps seems to be more of a new and attractive decoration rather than a

security measure. They have often been issued in connection with stamp exhibitions or other philatelic events. Stamps with holograms have already become a new philatelic topical field. In this book the emphasis is on the holograms, the different types, the images, the producers and the story behind them. The holograms have been recorded with the correct illumination (a spotlight at a certain angle) as well as using a high-resolution digital camera with a macro-lens. In addition, some holograms which are of the *two-* or *multi-channel* type have been illustrated with several photographs which reveal the individual images stored in the hologram on the stamp. It is not possible to scan the stamps and souvenir sheets since the illumination in the scanner cannot correctly replay the holographic image. However some of the illustrations in this book have been recorded using a scanner for example to reproduce FDCs, which means that the hologram image on them is not correctly shown. In many such cases a separate, correctly recorded photograph of the hologram, has been provided next to the scanned FDC illustration. In Chapter X more information is provided on how to illuminate hologram stamps and taking photographs of them.

From a philatelic point of view the review lack some details as regards, for example, detailed printing details about the paper used for the stamps, conventional printing techniques applied, etc. Nevertheless this book may be valuable to philatelists who are interested in the topical subject of holograms. The extensive information provided here is not possible to find in any other philatelic publications or any publications listed among the references.

For those who are not very familiar with the *philatelic terminology* the following definitions are provided:

Block is an unseparated group of stamps, at least two stamps high and two stamps wide.

Cachet is a design on an envelope, usually on the left side. Cachets are most commonly found on first day covers and typically are illustrations and or text relating to the subject of the stamp or event being commemorated. There are many examples of cachet holograms.

Cancellation (or **cancel** for short) is a **postal marking** applied on a **postage stamp** or **postal stationery** to deface the stamp and prevent its re-use. Cancellations come in a huge variety of designs, shapes, sizes and colors. Cancellations can affect the value of stamps to collectors, positively or negatively. Postage stamps with holograms are rarely used which means that cancelled hologram stamps are not very common with the exception on FDCs.

Cinderella stamps are many different types of stamps, for example, commemorative stickers, stamps issued by non-recognized countries or governments, **Christmas seals** and **local stamps** and purely decorative items created for advertising or amusement.

Definitive stamp is a postage stamp issued as a regular stamp for the country or territory in which it is to be used.

Denomination is the value of a postage stamp as printed on the face of the stamp. The denomination is not the same as the value of a stamp on the philatelic market, which is usually different.

Error on postage stamps is normally a failure in the stamp printing process that results in stamps not having the intended appearance. Errors include use of the wrong colors, wrong **denominations**, missing parts of the design, misplaced or missing design elements, such as holograms, etc. They are prized by collectors, with some fetching prices thousands of times higher than the normal stamp of their type.

FDC stands for First Day Cover. FDCs are normally issued on the day when new postage stamps are issued.

Overprint is an additional layer of text or graphics added to the face of a **postage stamp** after it has been **printed**.

Postage stamp is a small piece of paper that is purchased and displayed on a letter or any other postal item as evidence of payment of postage. Typically, stamps are made from special **paper**, with a national designation and denomination (price) on the face, and a gum adhesive on the reverse side.

Postal stationery is a stationery item, such as a **stamped envelope**, **postal card**, **lettercard**, or **aerogram**, with an **imprinted stamp** or inscription indicating that a specific rate of postage or related service has been prepaid.

Selvage is the margin around the sheet of postage stamps. The selvage may include the plate number, copyright, and other markings. There are examples of holograms being attached to the selvage area of stamp sheets.

Se-tenant stamps or labels are printed from the same plate and sheet and adjoin one another. They differ from each other by design, color, denomination or **overprint**.

Souvenir sheet is one or a few **postage stamps** attached to a **sheet** on which they were printed. They may be regular issues printed in small groups, or special issues often commemorating some event, such as a national anniversary, philatelic exhibition, or government program. The stamps on the sheet may be **perforated** or imperforated. The margins or selvage of the sheet may have additional printing, for example a statement of the occasion being commemorated. The margins of the sheet may have ornamental designs, emblems and logos which are not the part of stamp(s). Both the stamps and the entire sheet are valid for mailing, although they are almost always sold above face value and kept in mint collection by **collectors**. Hologram stamps are often issued as souvenir sheets. In **philately**,

Tête-bêche (French for "head-to-tail", lit. "head-to-head") is a joined pair of **stamps** in which one is upside-down in relation to the other, produced intentionally or accidentally.

For those who are not familiar with *holography* and the *holograms* the following information is provided:

Holography was invented in 1948 by Dennis Gabor who was awarded the 1971 Physics Nobel Prize for his invention. Holography was convincingly demonstrated after that the laser had been invented in the early 1960s. Emmett Leith and Juris Upatnieks in the USA demonstrated a *transmission hologram* with a monochrome 3D image in 1964. More or less at the same time, in the former USSR, Yuri Denisyuk demonstrated a slightly different type of a hologram which was the *reflection hologram*. Since then, there have been several holographic techniques developed. Applications of holography are found in 3D display techniques; scientific high-resolution imaging; for recording diffractive optical

elements and other optical components. One important application is the use of holograms as an *optical variable device* (OVD) on documents as a security measure. Most well-known here is the use of *embossed, mass-produced holograms* on credit cards and banknotes. This type of hologram is also the type which is used on postage stamps. These holograms are known as *rainbow holograms* or *Benton holograms*, named after the inventor and MIT professor Stephen Benton. The advantage of this technique is that it is possible to view the image in ordinary white light. (The laser is only needed for the recording of the hologram). Another advantage of rainbow holograms is that it is possible to produce them in very large quantities, using *embossing* techniques. They are attached to documents, banknotes or postage stamps by *hot-stamping* techniques. The majority of holograms for postage stamps are attached by hot-stamping to printed paper stamps but some embossed hologram postage stamps have been issued as *self-adhesive* stamps. Since the embossed rainbow hologram is actually a transmission hologram, they have to be *mirror-backed* to be able to view and illuminate them from the same side when attached to documents or stamps. This explains why holograms on stamps have a reflecting coating (looking sometimes just as a piece of reflecting foil). The reflecting layer is also included in all credit card holograms. The Appendix provides more information on holography and holograms, in particular how to illuminate them correctly to be able to view the image. The reader can also find books on holography in the list of references.



The author on the tab of the *two-channel* hologram on the personalized Australian Millennium stamp

3-4. Hologram stamps and holographic items issued in 1991

There were no *definitive* hologram stamps issued in 1991. Instead two important souvenir sheets were issued, one in Hungary and the other one in Poland. The Hungarian sheet was issued in several limited editions and the 1000-edition souvenir sheet is, so far, one of the most expensive hologram stamps issued. The Polish souvenir sheet has a very beautiful animated butterfly hologram attached. P. R. China continued issuing the traditional New Year stamp folder with a hologram. In addition another Chinese folder with several hologram stamps was issued this year. Several FDCs with cachet holograms were issued in the USA.





Fig. 3-4.1. The *sheep* hologram and the Chinese card issued in 1991

The fourth New Year presentation folder in **P. R. China** was issued on **January 5, 1991**, by China National Philatelic Corporation. The folder has a circular 2D/3D *sheep* hologram attached to the left inside page, produced by Qingdao Qimei Picture Co. Ltd. Four ordinary Chinese stamps are attached to the opposite side as the hologram. More information about the folder is provided in **Table 1**. The folder was designed by Lei Hanlin and is shown in Fig. 3-4.1 next to a photo of the hologram.

In addition to the traditional New Year Presentation Folder, **P. R. China** issued on **January 5, 1991**, a special folder to commemorate the first complete series of ‘*Animals of the Year Stamps*.’ In this folder all twelve stamps are embossed hologram reproductions of all the animal stamps issued between January 1980 and January 1991. The twelve holographic stamps are in two sets of six, however, not postal valid. The card was designed by Lei Hanlin. Shenzhen University and the Institute of Reflective Materials in China produced the holograms. This folder is listed as card No. 6 in **Table 1** with the other Chinese New Year presentation folders. The twelve hologram stamps are shown in Fig. 3-4.2.

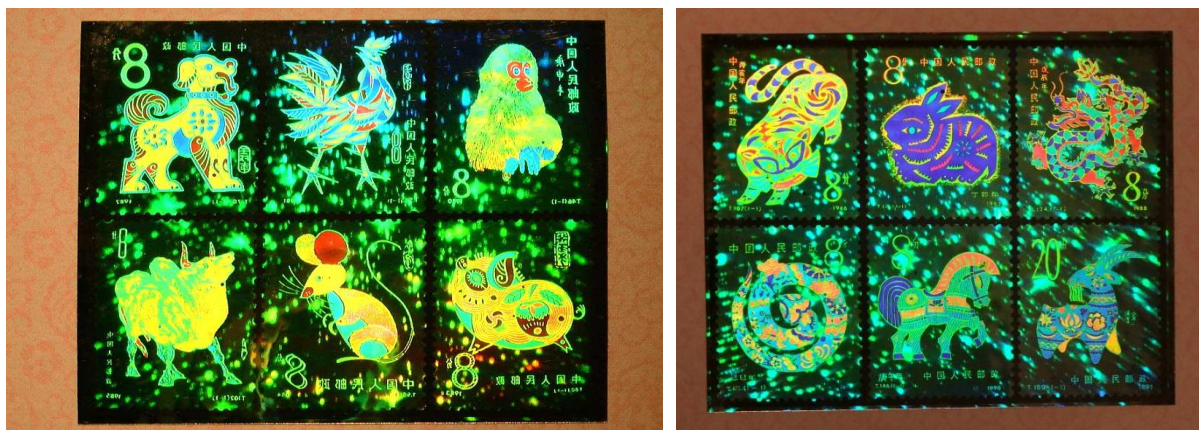


Fig. 3-4.2. The twelve hologram stamps in the *Animals of the Year Stamps* folder

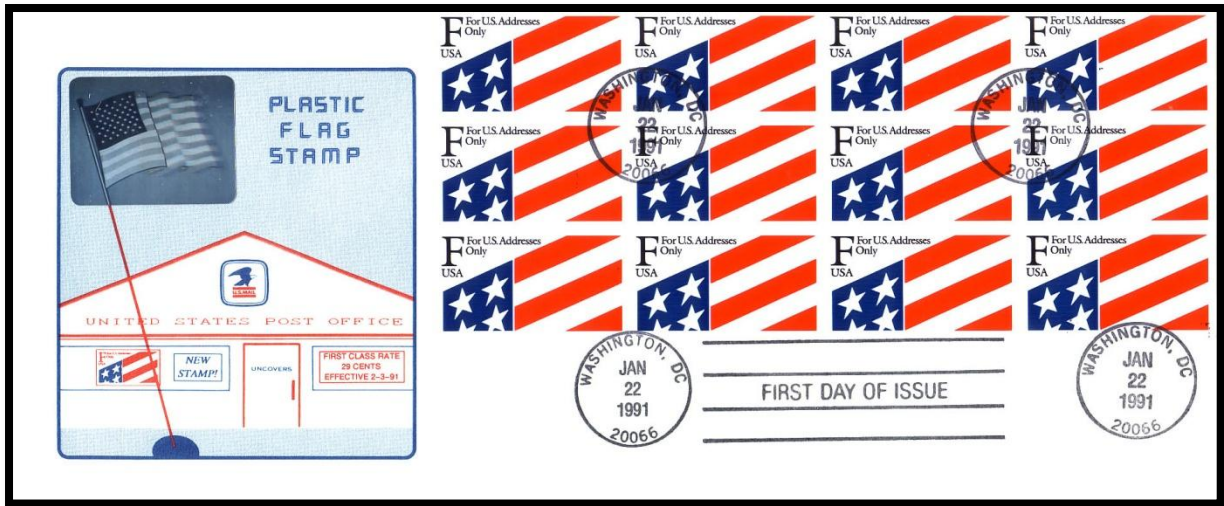


Fig. 3-4.3. The plastic stamp FDC with the *US flag* cachet hologram

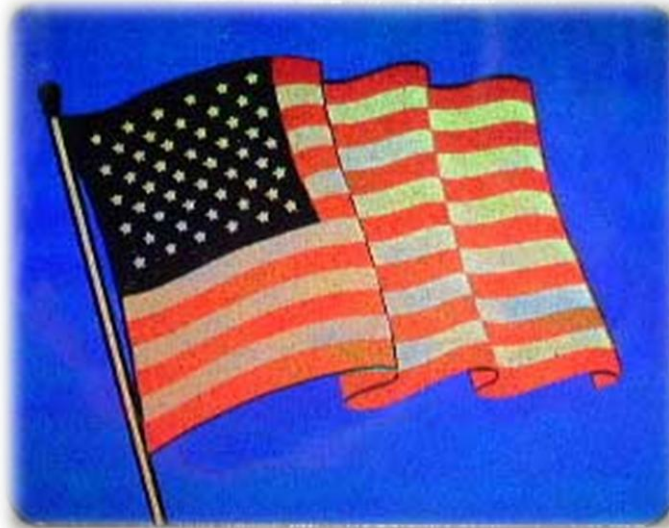


Fig. 3-4.4. The *US flag* hologram

On May 18, 1990, in the USA, a six-month marketing test to sell stamps through Automated Teller Machines (ATMs). To meet the strict engineering requirements of ATMs, the stamps were made of a specially formulated polyester film. The panes of 12, which were the same size and shape as a dollar bill, were dispensed from the ATMs just like cash. In addition to offering customers the convenience of round-the-clock access to stamps, the ATM issues also offered the ease of peel-and-stick application with no licking or tearing. The first 25¢ nomination stamps were issued in 1990. On **January 22, 1991**, a second version of this stamp was issued in the **USA**. This time it was marked 'F' for domestic addresses only. Although the F stood for Flower on the regular non-denominated stamps, it was purely coincidental that it also stood for Flag on the experimental ATM stamps. In Fig. 3-4.3 the FDC with an attached *US flag* embossed cachet color hologram. When correctly illuminated it display a nice 3D image of the *American flag* as shown in Fig. 3-4.4. This hologram was also used on other US FDCs issued later in 1991. (See Figs. 3-4.xx

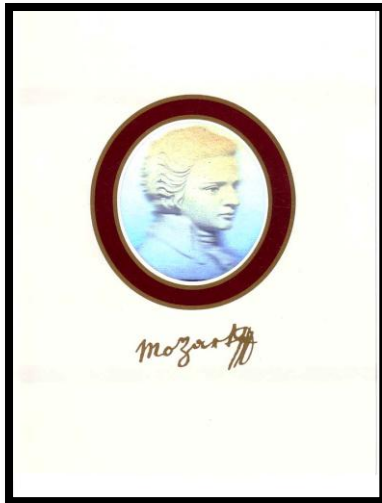


Fig. 3-4.5. Cover with Mozart hologram

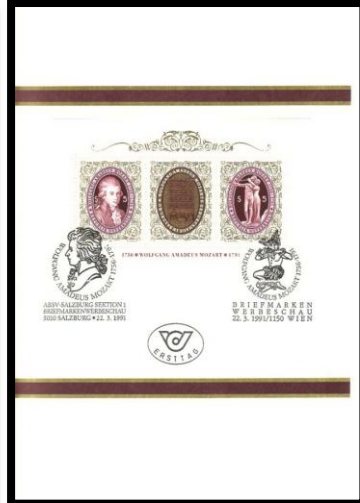


Fig. 3-4.6. Mozart stamps

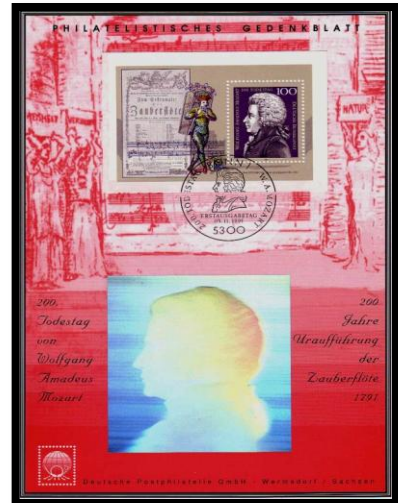


Fig. 3-4.7. Mozart hologram on German card

Holograms of *Mozart* appeared on two different philatelic folders in 1991. One was issued in **Austria** on **March 22, 1991** (Fig. 3-4.5 and 3-4.6). A folder with a set of four ordinary 5 schilling stamps was issued 200 years after the death of Wolfgang Amadeus Mozart (1756 - 1791). The other folder was issued in **Germany** on **November 5, 1991**, to both commemorate his death and the premiere of 'The Magic Flute.' On this folder is, in addition to the hologram, a normal 100 pf stamp with a picture of Mozart (Fig. 3-4.7). The card was issued by Deutsche Postphilatelie GmbH in Wermisdorf/Sachsen.

USA issued a Cardinal stamp FDC with a Bill Norton cachet hologram of the *St Louis Baseball Cardinal Logo* on **June 22, 1991**, shown in Fig. 3-4.8. The hologram was produced by Upper Deck Co. and recorded by Lasersmith Inc, in Chicago.

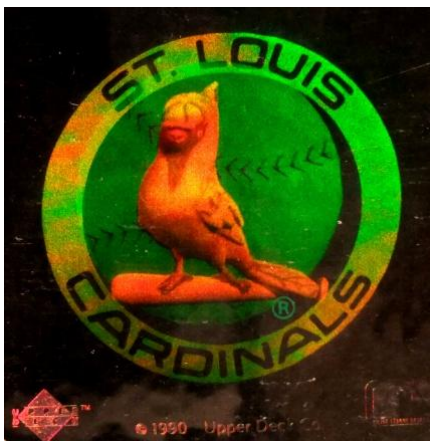


Fig. 3-4.8. The *St Louis Baseball Cardinal Logo* cachet hologram and the FDC with it attached

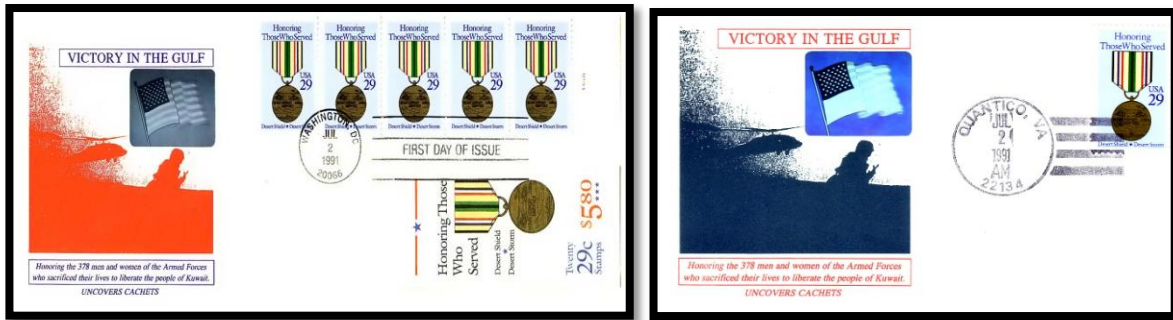


Fig. 3-4.9. The US flag cachet hologram on the two 'Victory in the Gulf' FDC envelopes

To celebrate the VICTORY IN THE GULF, USA issued on **July 2, 1991**, a 29¢ 'Honoring Those Who Served' stamp. Two different FDC envelopes by Uncovers Cachets with the same *American flag* hologram as was shown in Fig. 3-4.4. The two FDCs are shown in Fig. 3-4.9.

The same Light Impression Inc. *space ship* hologram (Fig. 3-4.10) was used on two FDCs issued in the USA; one is on the STAR TREK FDC, issued on **September 8, 1991**, with the US 45c 20th Universal Postal Congress Moon Rover stamp (Fig. 3-4.9). The other one is on the official First Day Cover by Spaced-Out Covers was co-sponsored by UFO Abductees Inc. and Andromedia First Day Cover Society. It was issued on **October 1, 1991** and the stamp on it was the Neptune Voyager 2 US 25¢ stamp (Fig. 3-4.11).

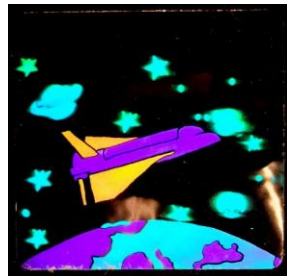


Fig. 3-4.10. The space ship hologram



Fig. 3-4.11. STAR TREK FDC with space ship hologram

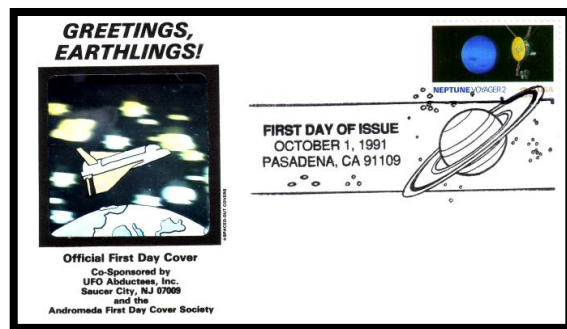


Fig. 3-4.12. UFO-Andromeda FDC with space ship hologram

In association with the '3e Colloque franco-allemand sur Les Applications de L'Holographie' a special **November 15, 1991**, cancel in St Louis, **France**, was used (Fig. 3-4.13).

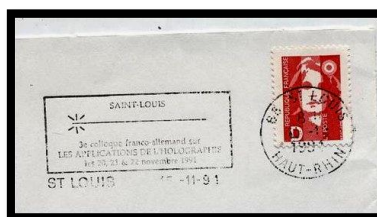


Fig. 3-4.13. Holography conference cancel



Fig. 3-4.14. 1990 Coat-of-Arms block



Fig. 3-4.15. Crown hologram stamp

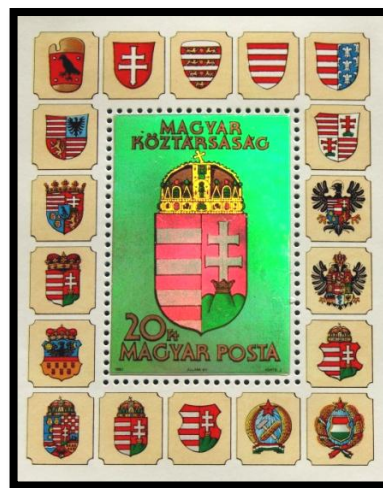


Fig. 3-4.16. The 18 Coat-of-Arms with the Crown hologram in the middle

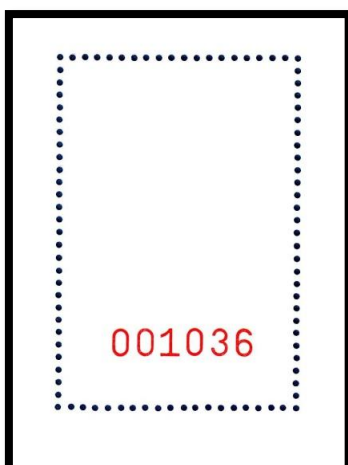
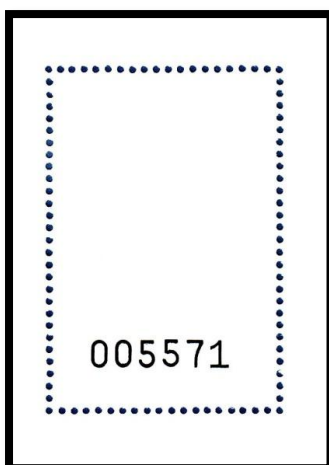


Fig. 3-4.17. The reverse side of the two different Crown stamp editions
Left: 7,500-edition, marked in **black**; *Right:* 3,500-edition, marked in **red**



Fig. 3-4.18. Edition limited to 1000 stamps

Hungary issued a 20 Ft souvenir sheet with a hologram on **November 15, 1991**. The first Hungarian hologram stamp was based on a regular stamp: ‘Coat-of-Arms of the Republic of Hungary’ issued on August 17, 1990, shown in Fig. 3-4.14. The new hologram stamp is shown in Fig. 3-4.15 and the sheet in Fig. 3-4.16. ‘Magyar Köztársaság Címere’ features the new *Hungarian national ‘small crown’ coat-of-arms (No. 7)*. The hologram stamp is surrounded by 18 coat-of-arms of those used since the era of the Árpád-House and ending with the 1949 Hungarian People's Republic. Three editions exist: 1-7500, numbered in **black** on the back of the stamp, (Fig. 3-4.17, *left*) 1-3500, numbered in **red**, (Fig. 3-4.17, *right*) and 1-1000, numbered in **red** at the front bottom and marked at the top ‘**Magyar Posta ajándéka**’ (Gift of the Hungarian Post) shown in Fig. 3-4.18. The hologram stamp was produced for and was included in *Collection of Hungarian Stamps '90*, a book with all issued Hungarian stamps in 1990.⁸ The sheets with the black numbers were inserted in the book. The hologram stamp was printed in a quantity of 200,300 perforated and 4000 imperforated. József Vertel designed the stamp, Tibor Balogh, Artplay Studio, recorded the hologram which was embossed by Kolbe Druck GmbH in Germany. State Printing House, Budapest, printed the stamps. Since this souvenir sheet was issued Hungary has issued several stamps with holograms. One reason for producing several Hungarian hologram stamps may be that Dennis Gabor, the inventor of holography, was born in Hungary.



Fig. 3-4.19. The butterfly hologram on the Polish souvenir sheet



Fig. 3-4.20. The PHILA NIPPON '91 souvenir sheet



Fig. 3-4.21. The FDC with the 'PHILA NIPPON '91' sheet



Fig. 3-4.22. The special 'PHILA NIPPON '91' FDC

One very beautiful hologram souvenir sheet was issued in **Poland** for the international stamp exhibition 'PHILA NIPPON '91' in Japan. The souvenir sheet was issued on **November 16, 1991**. The hologram shown in Fig. 3-4.19, of a butterfly '*Aporia Crataegi*' is attached to one stamp while an accompanying non-holographic stamp of the set-tenant pair (Fig. 3-4.20) shows the Phila Nippon'91 logotype (No. 8). The hologram is interesting with the butterfly's flapping wings and color shift when the stamp is tilted. Ovidiu Oprescu designed the souvenir sheet and the hologram was produced by Light Impression Inc., USA, and printed by Speciality Printers of America. Poland's FDC of the First Holographic Issue is shown in Fig. 3-4.21 and the 'PHILA NIPPON '91' FDC in Fig. 3-4.22.