

# *Great Britain: The 1858–1879 1d Rose-Red Plate 77*

## **Questions, and Possible Answers, Concluded**

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### **Summary of Previous Findings to Date**

The 1d rose-red stamps of Great Britain with check letters in all four corners, a design similar to the “Penny Black” of 1840, bear a plate number in the filigree on both sides of the design (Figures 1 and 2). Plate 77 always has been iconic in its status in the philatelic world as one of the most sought-after of rarities.

How the nine known surviving copies came to exist is a mystery that has never been fully explained, but they always have been accepted for what they obviously had to be; stamps printed from a plate with the number “77.” Early students of the stamps were aware of the seeming impossibilities surrounding the stamps.<sup>1</sup>

The most convincing evidence that suggests that impossibility is provided by Inland Revenue document IR/79/79, which shows that Plate 77 was neither registered nor put to press. By not being “registered,” no impression from it, often called an “imprimatur” sheet, was made for the records. The document also shows “Impressions Printed/None,” and has an asterisked comment saying that the plate was “Incorrectly laid down for perforation.”

For many years, only nine copies have been considered to be genuine examples to have survived from plate 77; four unused (with a fifth in the Crocker Collection destroyed in the fire that followed the 1906 San Francisco earthquake) and five used. The unused stamps come from the top of the sheet while the used stamps come from the bottom half of the sheet, as seen by the check letters.

Prior to the discovery of a cover with three stamps that appear to be plate 77, there was no reason to suspect that the nine copies needed to be subjected to further inspection. The register sheet (or “imprimatur”) did not exist, so there was nothing with which to compare them. It was the discovery of the cover with three copies showing plate 77 that made a new examination of all of the plate 77 stamps a matter of interest.

Three of the accepted plate 77 stamps were examined, an unused example from the Royal Philatelic Collection and two from The British Library, of which an unused copy was from the Tapling Collection and the other, a used copy, was from the Fletcher Collection. They were compared with the roller die that was used to create plate 77, and it can be seen that they do not match the characteristics in the second “7” found on the transfer roller die. Each was shown in the September–October 2008 issue of *The Collectors Club Philatelist*, matched against the roller die. This was never done before, simply because it was previously never thought to be necessary.



**Figure 1.** The 1840 1d black.



**Figure 2.** The 1d with four check letters, plate 172.

Besides not matching the roller die, the numbers do not match each other. If they had been created by the normal process used to make a plate, these parts of the design should be identical.

## Some Basic Information about the Issue under Consideration

To understand the situation behind these issues, and for the information of those readers who responded to the first part of this article with questions, it is necessary to give some background, since not everyone has studied these stamps.

As virtually everyone knows, the “penny black” was the first adhesive postage stamp in the world, with an issue date of May 6, 1840. Its design continued on the 1d and 2d denominations, with minor modifications, until 1879. One of these modifications was introduced in 1858. Up to that point, the designs had “check letters” in the bottom two corners and Maltese crosses in the top corners. These letters started from “AA” in the top left stamp on the sheet, proceeding across the sheet with “AB,” “AC” and ending the row at “AL.” The second row showed letters “BA,” “BB” and ended that row with “BL.”

As with anything of value, the stamps soon attracted the attention of those who tried to reuse them, resorting sometimes to cutting uncanceled portions of two stamps and piecing them together to mail a letter. This savings was not insignificant, in that one penny in the 1840s was roughly the equivalent of 50¢ in today’s currency.

Charged with the problem of ensuring that the government not be defrauded by these measures, a “Circular to all Postmasters who obliterate Postage Stamps” was sent on July 29, 1858. The quotation, with Bacon’s parenthetical addition, reads:<sup>2</sup>

In order to prevent frauds, which have sometimes been attempted upon the Revenue, by the use of Postage Stamps, formed by joining together clean portions cut from labels, which have previously passed through the post, the letters which now appear at the lower corners of the Postage Labels, will in future, be repeated at the upper corners; transposed, however, so as to afford still greater security, thus :—

[An illustration to represent a postage stamp, done from a wood-block, was printed here, which shewed the Queen’s head on a background of horizontal lines, enclosed within an upright rectangular frame with the letters ‘BA’ in the upper corners, ‘AB’ in the lower corners and the number ‘123’ in small figures at each side. This was evidently copied from the Essay of the One Penny we have already described.]

On the right and left-hand side of each Label, the number of the Plate from which it is printed will appear in small figures as shewn above.

If any Postage Label passing through your office, should appear to have been formed by pieces cut from separate stamps, you will be careful to ascertain whether the letters at the corners are arranged in the manner above described, and whether the number on each side of the Label is the same. Should any difference appear in these respects you will treat the letter in the manner laid down in the 130th Rule of Instructions to Postmasters.

Twopenny Labels with these alterations will shortly be issued, and the change will ultimately be extended to the Penny and other Labels.

[signed] ROWLAND HILL  
Secretary.”

July 24th, 1858.

The reverse sequence of letters at the top of the stamp was an improvement over a suggestion that had been in consideration for some five years, in which letters should also be in all four corners, starting from the top left and reading across, then continuing on the bottom half of the stamp, with “ABCD” in the first, “BCDE” on the stamp to its right, “CDEF” in the next, and so on. The next row, however, would have started

with “BCDE” and continued as though the row above had been shifted one to the left. This would not have solved the problem completely, since many of the positions would be duplicated and upper portions to join with lower portions would also be available from different stamps.<sup>3</sup>

An essay of a stamp with check letters in the four corners, presumably printed in 1858, was described by Justice F.A. Philbrick and W.A.S. Westoby in 1881, in which they stated “a roller impression of Die I. of the One Penny (Heath’s original head) was taken, from which the Maltese crosses were removed and an assumed plate number of three figures (123) was engraved in the reticulated framework, the figures being larger and thicker than those afterwards adopted.” They further stated “the impression was in the ordinary red colour, and was taken off on paper watermarked with ‘large crown’ inverted.”<sup>4</sup> Although the writers were careful observers, the existence of this essay has not been confirmed by their contemporaries and has not been seen in the years since their report was written.

The transition from the use of the old plates to the new ones with four check-letters was not easy. Perkins, Bacon had difficulties creating plates 69 and 70, each of which was deemed not suitable for production of stamps. Ormond Hill wrote to Perkins, Bacon about plate 69 that “the rows of stamps are so far oblique that we cannot perforate the impressions from it.”<sup>5</sup> In “A history of the Adhesive Stamps of the British Isles” by Hastings E. Wright and A. B. Creeke, Jnr, London, 1899, the authors state that plate 70 was “rejected on account of a flaw in the steel.” Ormond Hill “asked that the two plates should be ‘partially defaced without delay’ to prevent them being used again by mistake.”

## How the Plates Were Made

The source for much of the authoritative information about these and early issues was the 1920 book by E.D. Bacon. However, in 1929, he produced a supplement that contained new information that had not been available to him earlier.<sup>6</sup>

The original requirement for the 1d stamps with four check letters was for twenty of the new plates, from which to print simultaneously to meet supply needs, along with reserve plates. Ormond Hill, aware of the problems in plate production, wrote to Perkins, Bacon on February 22, 1864, saying that it had

been decided to discontinue the issue of the present two corner lettered One Penny Postage labels and to commence that of the four corner lettered stamps as soon as the latter kind can be produced at a sufficient rate to meet the demand, and considering the desirableness of gradually replacing our large stock with the new sort: in the meantime I have to request that as soon as there are fourteen of the new four-lettered plates ready they may be put to press and worked simultaneously with as many of the old kind as may be necessary to maintain the regular supply, that afterwards each new plate be registered and put to press as soon as completed, an old one being withdrawn on each such occasion, and that as soon as eighteen new plates be at work all of the old kind be withdrawn.<sup>7</sup>

Perkins, Bacon put fourteen of the four-lettered plates to press on March 1, 1864, and by the end of the month the number had been increased to eighteen. The stamps are believed to have been issued to the public on April 1, 1864, and during that month, four more plates were registered and put to press.<sup>8</sup>

How the plates were prepared is also a matter of interest. Bacon’s supplement covers matters that had not been explained before, particularly the existence of “twenty-four flat dies ‘two on one steel’” mentioned in the Somerset House records. He terms

the dies “mysterious,” in that the technical reasons that so many dies had been made was puzzling, when “two or three at most would have sufficed.”<sup>9</sup>

The process that Bacon describes shows how an initial approach was tried and abandoned in favor of one that was adopted. Originally, the die impressions, with two on each piece of steel, were the focus of the work to create separate plates. Each die was to be altered to erase the crosses at the top and to insert letters in 480 additional locations on each plate. Although the number of twenty dies is the same as the desired minimum number of active plates, that may have been coincidental. Bacon suggested an explanation.

Rather than change each die on the flat plate by punching a number that would be thick and in color (or “black letter”), a roller transfer die was created that held from six to eight basic impressions from the same die. These “impressions on the rollers would of course have four blank corners but no plate-numbers. No ‘shaving off’ would therefore be required, owing to the use of the ‘intermediate’ dies without crosses, which no doubt effected a considerable saving of time.”<sup>10</sup>

Bacon continued:

But to print the numbers in ‘white letter,’ i.e., white figures on a coloured background (the plan ultimately adopted), they must be cut or engraved on the rollers, which are in relief, so that when reversed on the plate, they would show white on the printed stamp.

The respective plate number of each label on the roller was therefore cut in a fine ‘hair line’ into the steel twice on each label, resulting in the plate-number generally being easily seen against the background of the reticulated side borders.

On the other hand, had the numbers been engraved or punched on the flat dies, so as to print in colour on the stamp (as we believe was at first intended), they would have been thicker and larger, and would not have been clearly seen against the dark background, the general effect being incongruous.

‘White letter’ numbers could not have been punched on the flat dies, nor ‘black letter’ numbers engraved on the rollers; nor could any numbers, whether ‘black letter’ or ‘white letter’ have been punched on the rollers.

In spite of all this work, with the “twenty flat dies made, by March, 1858, the issue of the stamps had been postponed until such time as the existing plates were worn out.”<sup>11</sup>

Finally, it is helpful to note Bacon’s comments about the defective plates. He dismisses claims about plate 69 having had no plate numbers, attributed to “the late Mr. W.A.S. Westoby writing in October, 1881.” Regarding plates 75 and 77, he cites “a letter of Mr. Ormond Hill to Perkins, Bacon & Co., dated February 7th, 1863 in which he wrote: ‘I am very sorry to be under the necessity of rejecting the two Postage plates on account of the irregularity of the placing of the heads.’ No mention is made in the letter of the numbers of the plates, but the reference can only be to Plates 75 and 77, impressions from which were no doubt submitted at the same time as those of Plates 76 and 78 to 81, which were all registered on the same day as Mr. Hill condemned Plates 75 and 77.”<sup>12</sup>

Some students of these issues have considered the possibility that the impressions submitted to Hill may have been the only source of the examples now known as plate 77. However, that would not explain the somewhat worn appearance of those stamps, which is different from the fresh nature one would expect from a new plate, nor the other problems observed and mentioned in the first part of this article.

All of this background information may help to understand the processes involved in printing from these plates, the difficulties that Perkins, Bacon encountered in preparing them, and the ultimate urgency in going to press.

## New Findings

Subsequent to the printing of the previous installment of this article, stamps were obtained from the other plates numbered in the '70s (71, 72, 73, 74, 76, 78 and 79) that were used, for each of the positions of the three stamps mentioned above.<sup>13</sup> These were used to compare with the images of the three corresponding stamps from plate 77, a measure that had previously had no reason to be considered necessary. Although the matches would have to be confirmed by direct comparison, the plate 77 stamps have a very close resemblance to those from plate 72, although other plates might also be possible.

Bear in mind that when the impressions had first been rolled onto the plate, the four corner positions were still blank. After all 240 positions had been rolled into the soft steel, a punch was used to place the check-letters on each stamp. Since this was done by hand, the same check-letter combination on each plate can be seen to be somewhat different from any other. With the plates that had plate numbers in the design, this comparison was viewed as unnecessary. Until now.

The first part of this article mentioned that the cover with three stamps that bear the numbers of Plate 77, Figure 3, was examined by two expert groups.

The first expert group discovered that the check letters in the four corners were identical to those found on Plate 73 and concluded that stamps from Plate 73 had been altered to show 77. This was a logical assumption, and the explanation of how they were faked included removal of the "3" and replacement with a "7" from another plate that used a "7."

The second expert group detected what it believed to be a "painted in" alteration of the "3."

Since the stamps had obvious characteristics that showed that they originated on plate 73, there was no obvious answer to how they could have the plate number 77 without the number having been altered in some manner.

## New Scientific Examination

To confirm the findings from previous examinations, the cover was subjected to examination by Dr. Gene Hall, of Rutgers University. Hall's analysis of the Grinnell forgeries and other philatelic material has gained him a solid reputation and respect within philatelic circles.

The objectives of the study were to use nondestructive micro-energy dispersive X-ray fluorescence to determine the composition of the ink and paper of the 1d stamps on cover. In addition, Raman spectroscopy was used to determine the specific chemical compounds that make up the red pigment in the stamps.



**Figure 3.** A portion of the cover in question, with three plate 77 stamps.

The details of the examination are given here to show what was considered and the equipment used for that purpose.

Hall's analysis of the cover was conducted using two pieces of equipment. The first was an EDAX Eagle II micro-energy dispersive X-ray fluorescence (EDXRF) spectrometer using a rhodium (Rh) X-ray tube operating at 35 kV and 300 micro-amps under vacuum (Figure 4). The spot size of the X-ray beam was 30 microns. Typical analysis time was 400 seconds per sampling location.<sup>14</sup>

It was necessary to sample a number of positions on the stamps and cover in order to examine the similarities and differences that might be found in the elements of both.



**Figure 4.** The vacuum chamber of the EDXRF spectrometer.

### **Color Analysis**

First to be considered was the basic stamp color, which was sampled in a location away from the second “7” of “77.” A number of locations were observed to be sure that the pigment was consistent, which was the expected result. The “fingerprint” of the spectrum of the elemental composition of this color was used as a baseline for other comparisons, which we here call “Sample A.” There were no significant differences between samples, so one was selected to be representative of the group.

The second step was to sample the second “7” on the right side on two different stamps, to ensure that the composition of the ink was the same in the same position of each stamp. This examination yielded what we will call “Sample B.” Both samples were again virtually identical, so one was used to represent the group.

As a “control,” an example of a plate 73 stamp was sampled for basic color comparison. This will be called “Sample C.” This sample was seen to be virtually identical to Sample A. To complete the set of samples, the paper of the cover was sampled by itself, and found to be the source of the zinc that was cited in the first part of the article. The presence of zinc had been proposed by the owner of the cover as a substance that might make the difference between these and other stamps, but as a part of the cover it is obvious that it would register in the analysis that was conducted. It was not, however, a part of the conclusions reached by those who conducted the earlier forensic examination. Also, the previously suspected titanium was in a similar position on the spectrum as barium, so it has also been shown not to be the factor that it was earlier presumed to be.

The three samples were then used to answer two questions.

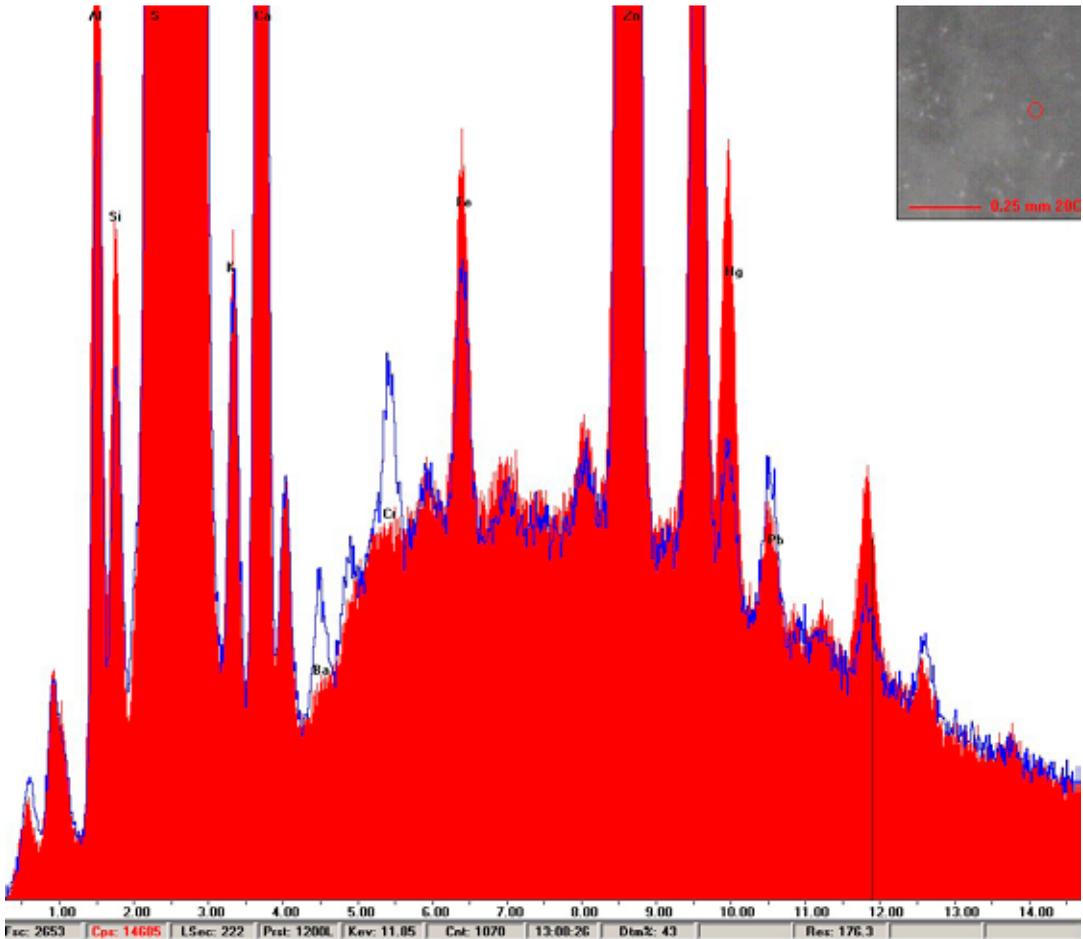
First, the two samples, A and B, were compared to see if there was any significant difference between them (Figure 5). A major difference between the two would indicate a different elemental makeup of the two inks of the same stamps on the same cover. If the two had varied significantly, that would suggest that the design had been altered by being “painted in.” The two are shown superimposed in the diagram, with Sample A in red and Sample B showing as a blue trace. The primary difference is in the presence of lead (Pb), barium (Ba) and chromium (Cr) in Sample B.

The preliminary report (reference 14) states:

Elements found in the stamps on cover were: Si, Al, Ca, K, S, Hg, and Pb. The same elements were found in the stamp from plate 73 single stamp off cover. The red (carmine) color on the stamps is due to the pigment vermilion (HgS) and red lead (Pb<sub>2</sub>O<sub>3</sub>)

and was confirmed by Raman analysis. Ca is due to gypsum ( $\text{CaSO}_4$ ) as a filler in the paper and Si and Al is due to Kaolinite which is a clay mineral with the chemical composition  $\text{Al}_2\text{Si}_2\text{O}_5(\text{OH})_4$  also used as a filler.

It is important to note at this point that the pigment in the second “7” (Sample B) matches that of the rest of the stamp (Sample A) as well as that of the control copy (Sample C). The identical nature of the inks of the three samples effectively rules out the finding that the ink had been painted in.



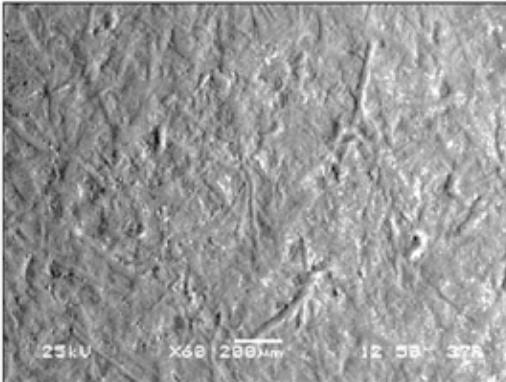
**Figure 5.** A spectral EDXRF graph of one of the stamps on the cover, with the red area representing the basic stamp pigment and the blue line showing the same response within the area of the second “7” of the same stamp. The tops of the Al, S, Ca and Zn traces have been cut to show lower details.

It is important to remember that although it may be possible to create a pigment that might fool the eye, the chemical composition may be quite different. A Raman comparison of the ink from the two samples (A and C) with Iconofile cinnibar cold ( $\text{HgS}$ , vermilion) will be seen later in Figure 10, showing that the three differ only in intensity.

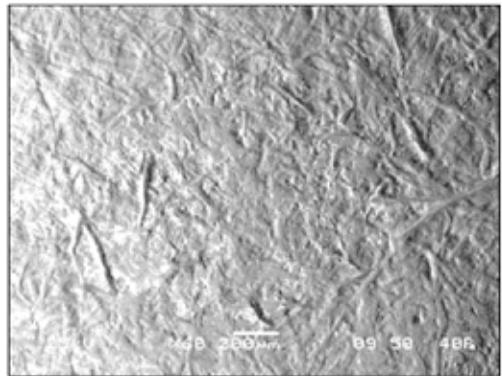
### Surface Analysis

Examination of the surface and surrounding paper of the diamond that encloses the second “7,” which was covered on page 281 of the preceding part of the article, shows that the fibers and the surface have not been disturbed. This was verified by additional microscopic examination. Only two of these areas were shown in the previ-

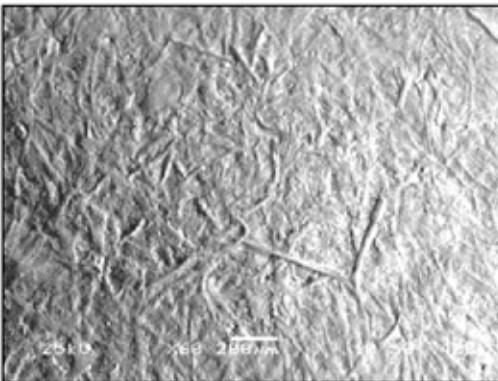
ous portion of the article, but a request for a more complete showing is here honored by showing each of the areas of each of the three stamps, including the scuffed area at the bottom right of the third stamp.



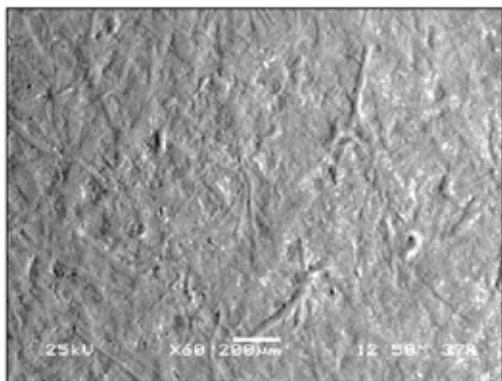
KS left diamond



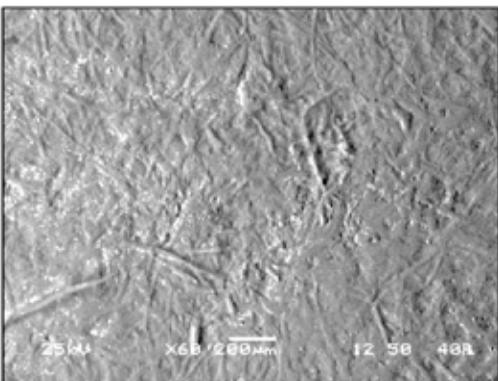
KS right diamond



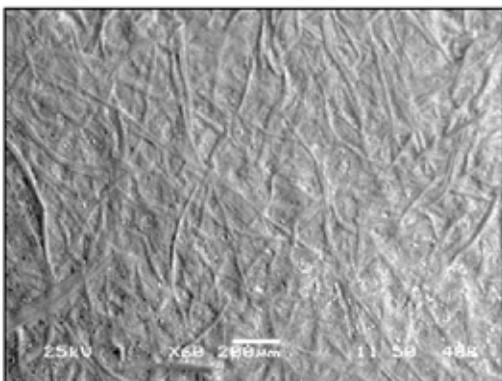
KS left diamond



LR right diamond



LS left diamond



LS right diamond, scuffed area

**Figure 6.** The six areas of the right-hand “7” from each of the three stamps on the cover. These are prints from a scanning electron microscope in topographic mode. Careful examination will show the outline of the diamond and the “7.” The position at bottom right is from stamp LS, which shows no “7” due to the scuffed surface of the stamp. Besides showing the fibers as undisturbed, ruling out cutting and replacing of the diamond areas, this level of examination would also reveal any pigment that might have been painted onto the surface, of which there is no trace.

One possibility that has been suggested to explain the “77s” on the cover is that the diamonds that contained the first “7” of one of the early plates had been cut out and placed into the second “7” locations on the cover. This would, of course, have provided materials that would match the color spectrum. On the other hand, such an exercise would have required exceptionally delicate manipulation of five very small areas of the three stamps, since the sixth position, on the lower right stamp was scuffed.

Assuming, for the moment, that such a replacement was possible, the natural question is why would one not do it on a single stamp, with only two operations to complete, rather than to a cover with cancellations and scuffed area to have to handle. This explanation is effectively dismissed by the complete absence of any manipulation of the paper, as seen by microscopic and scanning electron microscope examination in topographic mode (Figure 6). All paper fibers are intact.

### **Preliminary Findings**

In expertizing, only two explanations seem capable of explaining how the stamps on the cover can appear to be from plate 77; one would be that the design was painted in to change the number, and the other would be to maintain that portions of the stamps had been removed and replaced. Extensive testing by a number of laboratories has shown and confirmed that neither of these is a valid explanation. The only option remaining is that the stamps are, in fact, genuine examples of plate 77.

That, however, would require an answer to the question of why the stamps show the same check letters as plate 73. The answer could come from the small trace elements found in Sample B, of lead, barium and chromium. To determine how these might have had an effect required Raman microscopy.

### **Raman Examination**

Dr. Hall’s preliminary report states that “Raman and EDXRF are complementary nondestructive spectroscopic methods that can determine the elemental content and chemical compounds in philatelic material. In addition, the composition of the red ink can be determined based on the compounds found in the stamps.”<sup>14</sup>

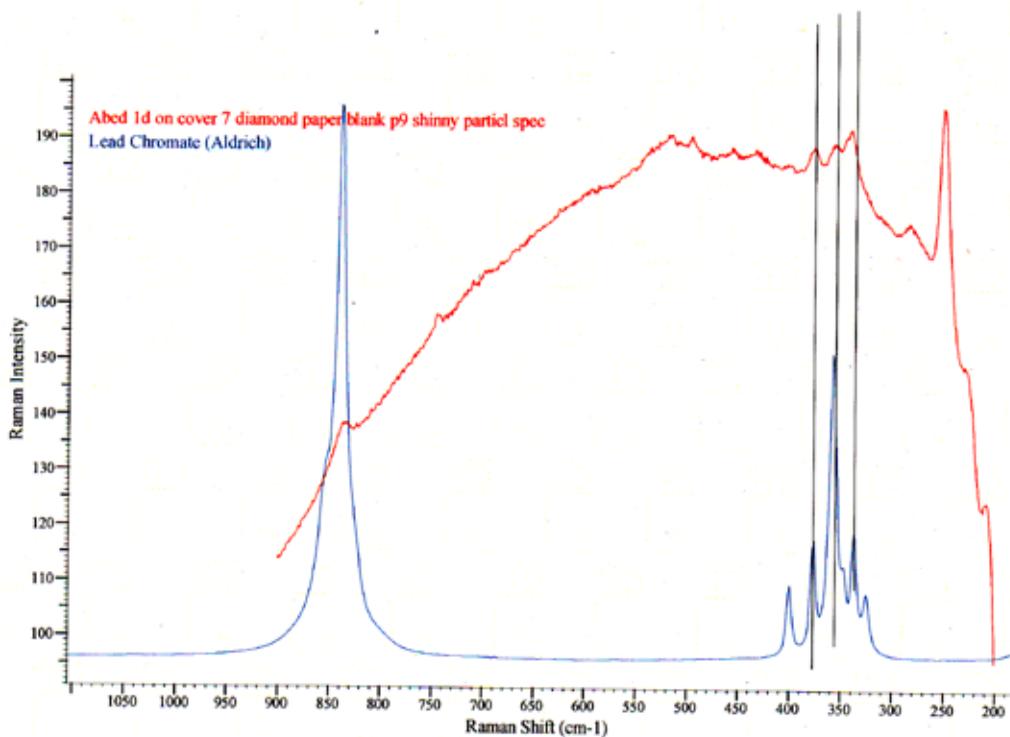
With the ability to use Raman examination to tell which compounds, rather than just the basic elements, are present in a sample, a valuable extra tool is employed. The trace elements were examined in the second “7” area to see what compounds they might be. The result was that the Raman examination confirmed lead chromate ( $\text{PbCrO}_4$ ) as being present in a small amount in the second “7” area.

Raman examination also confirmed that the pigment was the same in both the basic stamp and the second “7” area. The presence of the



**Figure 7.** The Raman microscope.

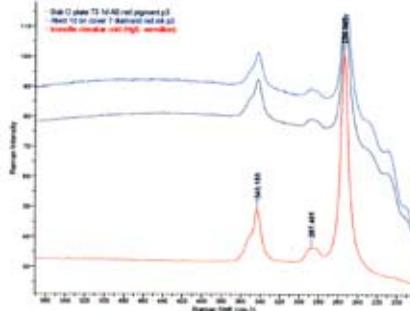
trace elements suggests that something in the area of the second “7” could have affected the final printed stamp.



**Figure 8.** The Raman scan showing the presence of lead chromate in a particle in the second “7” of stamp KS on the cover. The red trace shows the particle from the cover while the blue trace shows the lead chromate (Aldrich) standard. Since the particle has only traces of lead chromate, they show only as small, but significant, “bumps” in the scan. Note that the additional Raman scan of the pigment (Figure 10) is limited to the right area of this scan, accounting for the peak at the right. The scales used in obtaining the scan can be altered to concentrate on the areas of interest.



**Figure 9.** The cover inside the Raman microscope. Note that the metal washer holds the area of inspection flat. The area inspected is very small.



**Figure 10.** This Raman plot covers the right-hand side of the wider one in Figure 8. The red trace shows the standard for vermilion (HgS), while the two blue traces show the red color in the reference copy (upper trace) and the stamp on the cover (lower blue trace).

## Doubts

A review of the questions and observations about stamps bearing the plate number 77 is necessary to understand where the accepted copies and this cover may have originated.

Plate 77 is recorded in the Inland Revenue document (for an illustration of the page of that document, see page 273 of the previous issue of the *Collectors Club Philatelist*) as having been partially defaced on February 4, 1862, although the letter from Ormond Hill, cited by Bacon, suggests that it might more likely have been 1863.

The stamps with four check letters were first printed in March 1864, at least a year, and possibly two, after plate 77 was defaced and rendered not suitable for printing.

Copies of the accepted plate 77 stamps show some degree of wear, unlike the proof-like quality of print that would be expected of a newly made plate from which only a few examples might have been printed as early trials, using the ink formulation that would be used two years later.

Plate 72 is shown to have been reentered 13 times, with the date of the reentry shown as February 5, 1868, but partially defaced on March 23, 1868, and defaced on June 23, 1868. Plate 73 is shown to have been reentered 67 times, with the date of the reentry shown as January 31, 1868, but partially defaced on May 5, 1868, and also defaced on June 23, 1868. Why would any attempt be made to repair plates that must have been retired from use at least a year or two earlier and that would be effectively removed from service only a month or two later? Is it possible that the repairs were effected earlier but reported only later?

The transfer roller die clearly shows portions of the engine-turned background, in the form of dashes, that occur in the area of the right side numbers, but these and the character of the “7” on the die are clearly absent, and the numbers themselves are different in the accepted stamps.

Any reentry of the “wrong” die with plate 77 onto another plate would involve time-consuming placement of the plate and die on the transfer press, along with the likelihood of non-coincident lines appearing in any transfers made. Such an action would also probably have some effect on the check letters, but that would certainly be so if the entry had been burnished and replaced.

## Possibilities

Outside of discovering the actual plates from which these stamps were printed, it is highly unlikely that a definitive answer will ever be known as to how the stamps with plate number 77 were produced. All other explanations will have to depend on educated guesses.

The new study initiated by this cover has opened questions that have heretofore not been seen as necessary to ask. There was simply no reason to suspect that the stamps were printed from anything but a plate numbered 77. Having been forced to take a long new look, it appears from the foregoing that it is highly unlikely that the plate was ever used.

In the absence of a registered sheet, the accepted copies of plate 77 could not be compared with such a reference. It was only with the discovery that the cover bears stamps from what originally was plate 73 that the possibility that the accepted copies could be from a different sheet had to be considered. Initial comparison of the photographic images of the three copies used in this study shows a possible match with the check letters of plate 72 or plate 71. An actual direct comparison would be necessary to determine whether this is correct or not.

## A Solution?

The trace elements in the positions of the second “7” on the cover demand consideration. What sort of small but noticeable change could cause such a result?

Perkins, Bacon, as the innovator of the process that produced the first stamps in the world, was constantly working to improve its process. This endeavor would also include finding ways to repair plates that had suffered small damage without having to resort to expensive measures, such as scrapping an otherwise useable plate.

The diamond area in question on the stamp, where it surrounds the second “7,” is a recessed portion of the plate. The number in that diamond is at the same level as the surface of the plate, and not recessed, so in the printing process it has no ink to transfer, thus remaining white while surrounded by the colored diamond. That recessed area may be referred to as a “cup.”

Imagine the following sequence, which may have been tried by Perkins, Bacon as an experiment to make small repairs to plates:

- An engraver takes his small but very sharp tool and scoops the number (“3” in the case of the cover stamps) out of the cup.
- A few quick scratches in the cup make an area that would hold some new material, much in the same way as a dentist prepares a tooth for a filling.
- A drop of solder or some other alloy, containing lead chromate as a hardening agent, is put into the cup.
- After the metal has hardened, it is polished as needed, and the cup is cleared of all the material except for a new number. The easiest to make would be a simple straight-sided “1” but plate 71 was an “active” plate. The next easiest straight-sided number to engrave would be the unused “7” of plate 77.
- A small number of sheets would be printed from the experimentally repaired plate, to see how well the repair performed, and kept in storage by Perkins, Bacon, not to be used.
- With the metal of the repaired area still fresh, it is almost without question that some evidence of the compounds used in it could show in Raman examination.
- The lower half of one or more sheets managed to be used, while the top two rows of another were kept intact.
- If the repairs were done only on a small number of positions on the plate, it is possible that most of the plate retained the old numbers.
- Plates 72 and 73 were repaired, nominally in 1868, but the question remains open that they might have been repaired earlier, with the notation made at a later date.

This sequence of events would answer the anomalies observed in the three stamps on the cover, and would also offer an explanation for the existence of the other stamps that show plate 77.

## Future Studies Needed

Other solutions may be offered to explain all the questions raised in this article. Printers, in particular, seem to follow the principles of Occam’s Razor, or that the simplest solution is best.

In order to prove, or disprove, the assumptions raised here, one would expect that the next step must involve the plate 77 stamps. At the very least, they should be subjected to very close comparison with other possible “donor” plates, such as 71 or 72, to see if the check letters match. Strong indication is that the stamps from the two top

rows came from the same sheet, so it is reasonable to expect that all of those should match whichever sheet they came from.

Next would be Raman examination of the second "7s" of the plate 77 stamps, particularly to see if they are identical with the rest of the stamp or if they show evidence of some other compound, such as lead chromate. Absence of lead chromate would not necessarily refute the argument, since another compound might have been used in the experimentation on a different plate, but a difference between those locations and the remainder of the stamp would certainly be of interest in showing that something had been done.

For now, however, we have three stamps that show plate number 77 and which have no evidence of manipulation, on a part-cover that places their use in the proper time frame for these stamps. All indications from the evidence shown above are that plate 77 was almost certainly not used. Nine stamps with plate 77 exist, but now we must wonder where they came from. For the moment, the three on the envelope share the same characteristics as the other nine. Either they are all fake, which is absurd, or an answer can be found to explain them all. Whatever their origin, they should still be from a plate numbered 77.

## Opinions and Ideas Welcome

The facts presented in this article are sure to have generated some strong ideas among the students of philately worldwide. Although most are likely to have approached this with an open mind, human nature would suggest that some would reject any such new discoveries.

The next issue of the *Collectors Club Philatelist* will have space reserved for comments, ideas and counter-theories from those who wish to offer them. The deadline for such messages will be November 15, 2008, which does not offer much time. Email may be sent to CCPEditor@yahoo.com, or letters (and CDs) may be sent to the editor at P.O. Box 401, Bernardsville, NJ 07924-0401, U.S.A.

## Special Thanks

A very special and sincere vote of thanks must go to Dr. Gene Hall, of Rutgers University, who graciously offered to examine the cover and both to confirm and expand the level of coverage previously conducted, by use of the Raman microscope.

## Endnotes

1. Bacon, E.D., *The Line-Engraved Postage Stamps of Great Britain Printed by Perkins, Bacon & Co.*, London: Chas. Nissen & Co. Ltd., 1920, pp. 162, 163.
2. Bacon, p. 160.
3. Bacon, p. 157.
4. Bacon, p. 158.
5. Bacon, p. 162.
6. Bacon, E.D., *Supplement to the Line-Engraved Postage Stamps of Great Britain Printed by Perkins, Bacon & Co.*, London: Chas. Nissen & Co. Ltd., 1929.
7. Bacon, p. 165.
8. Bacon, p. 166.
9. Bacon, *Supplement*, pp. 21, 22.
10. Bacon, *Supplement*, p. 24.
11. Bacon, *Supplement*, p. 25.
12. Bacon, p. 163.
13. These positions were from a gift of reconstructions of each plate that were donated to the American Philatelic Committee Expert Committee.
14. Hall, Dr. Gene. Preliminary findings of examination rendered electronically.