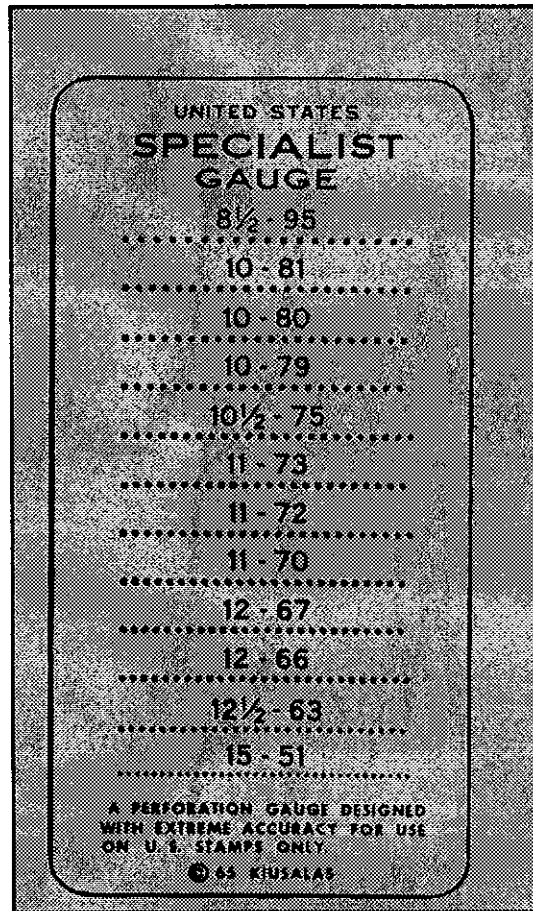


Perforation Measurements of United States Stamps



A Series of Articles
Reprinted From
The United States Specialist
Bureau Issues Association, Inc.
Reprint Series, No. 2

Bureau Issues Association, Inc.

Application for Membership

Mail to: Executive Secretary, P.O. Box 2641, Reston, VA 20195

I hereby apply for membership in the Bureau Issues Association, Inc., and have enclosed payment for my initiation fee, dues, and a subscription to *The United States Specialist* based on the remittance schedule below. I understand that the full amount of my remittance will be returned to me if my application is not accepted.

Name _____ Date of Birth _____

Address _____

City _____ State _____ Zip + 4 _____

References

Note: References are not required of current members of the American Philatelic Society or the American Stamp Dealers Association. Only a membership number is needed. Others should provide a full name and address of a personal and a philatelic reference.

APS No. _____ ASDA No. _____

Personal Reference _____

Philatelic Reference _____

Signature of Applicant _____ Date _____

Signature of Sponsor _____ BIA# _____

Remittance Schedule

Amounts include dues, initiation fee, and a subscription to the *U.S. Specialist*. Postage is included for USA addresses only. Others add \$7 in U.S. funds. Make all checks payable to Bureau Issues Association, Inc.

Jan.-Feb.-Mar. \$22.00

Apr.-May-June \$17.00

July-Aug.-Sept. \$12.00

Oct.-Nov.-Dec. \$27.00*

Amount Enclosed _____

* Includes 12 months of following year

SPECIALIZED PERFORATION GAUGES

RICHARD A. KIUSALAS (BIA 6215)

IN the United States, Canada, and many other countries, machine tools are calibrated in thousandths of an inch. If these tools are used in the manufacture of perforating equipment, the design of this equipment would have to be by a system that uses the thousandth of an inch as its basic unit. Following this assumption, we made an extensive study of perforations and found that they are not exactly what they are supposed to be.

The present system of measuring perforations is based on the number of holes that occur in a distance of 2 centimeters, and while this seems to be a good system, we found it rather difficult to mix centimeters and inches and come up with anything approaching satisfactory results. Since perforating equipment is designed with the thousandth of an inch as the basic unit, this seemed like a pretty good way of classifying the perforations themselves. If a perforation has a spacing of .072 inches between the centers of holes, we would knock off the decimal point and the zero, and call it a perf 72. This would be extremely accurate, but it would also be a bit revolutionary, so a little compromise seemed to be in order. A system of classification that would use the present listing in the Scott Catalogue, combined with our system, seemed ideal. Thus, perf 72 would be classified as an 11-72, and although the latter number is the only number of real significance in identifying this particular perforation, the former number is very helpful in identifying the stamp.

The results of our research showed that if we use the United States perf 15 and the Canadian perf 8 as limits, there is a possibility of 48 different sized perforations. This is quite a few to get on one perforation gauge, so if we designed a separate perforation gauge for each country, showing only those perforations that were actually used, it would cover the need very satisfactorily.

Twelve different perforations have been used on United States stamps, and eleven different on Canadian stamps. Only four perforations are common to both countries, but if we want to stretch a point we could raise this to five, because the perf 12½ of both have the same spacing, but the size of the holes on the Canadian perf is a bit larger.

The tables (page 61) will show the perforation sizes, the Specialist System, the present Scott Catalogue listings, and compare these to other systems of possible classification. As can be seen, only the Specialist System clearly identifies each perforation accurately.

Many collectors may doubt the need of

measuring perforations accurately; if you have any doubts in this direction, I assure you that there are many important needs and benefits. Unfortunately our research has been too limited to realize all of them, but several are quite apparent at this time. Expertizing of stamps can be greatly simplified by accurate measuring of perforations, and this alone could save collectors many dollars. If a stamp runs into real money a Philatelic Foundation Certificate is excellent insurance, but how about the varieties that only run to a few dollars? No one ever sends these in for a certificate, but with a little information and an accurate perforation gauge, a collector in many cases could be his own expert. While not much of this information is available at the present time, it is only a matter of time before more will be available.

**UNITED STATES
SPECIALIST
GAUGE**

8½ - 95
.....

10 - 81
.....

10 - 80
.....

10 - 79
.....

10½ - 75
.....

11 - 73
.....

11 - 72
.....

11 - 70
.....

12 - 67
.....

12 - 66
.....

12½ - 63
.....

15 - 51
.....

**A PERFORATION GAUGE DESIGNED
WITH EXTREME ACCURACY FOR USE
ON U. S. STAMPS ONLY.**

© 65 KIUSALAS

N.B. A reduced reproduction—not in scale.

Through the accurate study of perforations, I believe that it may be possible to identify more easily other hard to recognize varieties. The Small Queens of Canada come with six different perforations, and through the perforations, we might be able to find a pattern that would identify the various printings of this stamp.

I have examined several copies of the United States 1921 1c rotaries (Scott #544), and found these to be compounds of 11-73 by 11-72. If I were to see a copy of this stamp that did not agree with that, I would want to take a real close look. This 11-73 perforation is interesting because it has a hole size larger than the other perf 11's — the same diameter as the perf 10's.

Accurate measuring of perforations will also add many collectible varieties to both

United States and Canada. I have been accused of getting involved in too much detail. However, if perforations on otherwise identical stamps make a difference in some cases, why shouldn't they make a difference in every case?

I have been plugging this Specialist System of perforations, and have been meeting support and opposition. So far, my strongest support has been from collectors rather than dealers, and I am quite happy about that. Dealers have been telling me that the average collector doesn't give a darn about perforations, but I don't believe that. With the present gauges, perforations are a difficult study, and I believe that is the only reason some collectors shy away. With the proper equipment and some comprehensive information, perforations could be a most fascinating study.

UNITED STATES						
Spacing Inches	Actual Perf	Specialist System	Scott Listing	Nearest 1/2 perf	Nearest 1/4 Perf	Nearest 1/10 perf
.095	8.29	8 1/2-95	8 1/2	8 1/2	8 1/4	8.3
.081	9.72	10-81	10	9 1/2	9 3/4	9.7
.080	9.84	10-80	10	10	9 3/4	9.8
.079	9.97	10-79	10	10	10	10
.075	10.50	10 1/2-75	10 1/2	10 1/2	10 1/2	10.5
.073	10.79	11-73	11	11	10 3/4	10.8
.072	10.94	11-72	11	11	11	10.9
.070	11.25	11-70	11	11 or 11 1/2	11 1/4	11.2 or 11.3
.067	11.75	12-67	12	11 1/2 or 12	11 3/4	11.7 or 11.8
.066	11.92	12-66	12	12	12	11.9
.063	12.49	12 1/2-63	12 1/2	12 1/2	12 1/2	12.5
.051	15.44	15-51	15	15 1/2	15 1/2	15.4

CANADA						
Spacing Inches	Actual Perf	Specialist System	Scott Listing	Nearest 1/2 perf	Nearest 1/4 Perf	Nearest 1/10 perf
.063	12.49	12 1/2-63	12 1/2	12 1/2	12 1/2	12.5
.064	12.30	12-64	12	12 1/2	12 1/4	12.3
.065	12.11	12-65	12	12	12	12.1
.066	11.92	12-66	12	12	12	11.9
.067	11.75	12-67	12	11 1/2 or 12	11 3/4	11.7 or 11.8
.068	11.58	12-68	11 1/2	11 1/2	11 1/2	11.6
.070	11.25	11-70	11	11 or 11 1/2	11 1/4	11.2 or 11.3
.072	10.94	11-72	11	11	11	10.9
.083	9.49	9 1/2-83	9 1/2	8 1/2	9 1/2	9.5
.090	8.75	8 1/2-90	8 1/2	8 1/2 or 9	8 3/4	8.7 or 8.8
.099	7.96	8-99	8	8	8	8

WASHINGTON-FRANKLIN HEAD ISSUES

By LARRY WEISS, BIA 8558, Chairman

Determining Perforation Without a Gage

The chairman's old roll top desk has long been cluttered with books, papers, stamp newspaper clippings, and — alas — old bills, so that all perforation gages are lost or at least buried too deeply for convenient use.

Thus, being too lazy to clean the mess and already having enough bills without finding more, the chairman has found it much easier to determine the perforation gage on Washington-Franklin head issues by visual judgement or another quick and simple visual counting method using no aids of any kind (except 10 fingers and a few toes when the going gets rough). This visual counting method, to the committee's knowledge, has not previously been published.

Before giving readers the scoop on this simple technique, a bit more detail on its usefulness may be of interest. One is often making decisions on the purchase of stamps from either photographs or the actual stamps where it is not possible to handle the stamps. Photos are often reduced or enlarged, making overlay of perf gage useless. Even the many collectors who can visually distinguish perf 10, 11, and 12 examples may be hard pressed to accurately do so when a photo of a stamp is involved. When a stamp is on cover and no see-through or edge-reading gage is available, it may be handy to have this quick method. Also, at a stamp show or at your favorite dealer, the stamps may be under plexiglass and inaccessible to your perf gage. Thus, there are many opportunities to use this time saver.

Now the trick — simply count the number of complete and nearly complete perf arcs (or holes, if you have them) along one of the short sides of your Washington-Franklin head issue stamp. The perf 8 1/2 stamps count 9, the perf 10 count 10, the perf 11 gives 11, and the perf 12 gives, you guessed it 12. The perf 12 1/2 stamp, Scott #536, will count 13 holes. A little practice at this helps, but, yes, it is that simple.

A few examples of typical perf counts are given in the accompanying illustrations. You can also use the stamp bottoms and perhaps should do so as a check. Develop your own rules for sides if you feel the need.

There are of course a few places where the technique has obvious limitations, but these should be readily apparent in most cases. This method will work for all but the unusual jumbo or abnormally narrow stamp that comes along once in a while. No surety is to be had if the stamp has been reperfed. You may not find a compound perf stamp like those perf 11 stamps having perf 10 on top or bottom. Coils and booklet pane singles can present problems due to the unusual sizes possible and the lack of consistent dimensions. Also, if you want to attempt to identify the rotary press Washington heads with perfs different at sides from those on top and bottom, you will need to develop some additional perf counting rules for the sides.

It is certainly necessary to use a perf gage as a final arbiter in case of doubt, but after just a little practice with this method, you may find you have less dependence on one. There is, of course, little substitution for a good perf gage or a reference stamp in finding reperforation.

This method works mainly because the short side of a Washington-Franklin head issue stamp generally is about 2 cm, the standard length chosen for hole counting when gaging perforations. Whether by chance or design, it makes life simple.

Of course, this method works with many issues other than Washington-Franklin head issues, but it is not recommended for distinguishing a perf 10 1/2 from a perf 11. Fortunately, one does not have this particular distinction to make on any Washington-Franklin head issues.

There is certainly more to perforation determinations on Washington-Franklin head issues than presented here. In some future article the committee expects to review this area.

If ever that old desk top gets cleaned, I may have perf gages for sale. Anyone still need one?

Thanks for help on this article go to Tony Callendrello, David Lee, Bill Henderson, John Hotchner, and Randall Brooksbank.

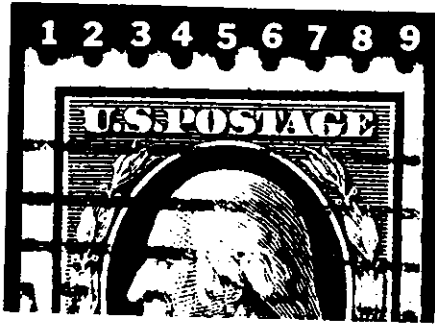
BIA Research Papers

- #1 Printing History of U.S. Postage Dues, Series 1894 and 1930 flat plates.....\$4
 - #2 Folded-Style and Pressure Sensitive Booklet Checklist. 10th edition.
Includes booklets from 1977 to December 1996.....\$5
 - #3 Dummy Stamp Booklets. Includes reports to September 1993.....\$7
 - #4 1/2¢ Presidential Bureau Precancels. Plate Numbers and Positions.....\$2
 - #5 Printing History of Washington-Franklin 3c-\$5 Denominations.
Includes coils and booklets but not offset issues.....\$7
 - #6 Printing History of Special Delivery, Parcel Post, Parcel Post Due,
Special Handling, Registration, Official Mail and Postal Savings Plates....\$4
 - #7 Production Records for the 1903 and 1914-15 Printings of the "Roosevelt"
and "Panama-Pacific" Small Die Proofs\$9
 - #8 Printing History of Booklet Pane Plates, 1900-1954.....\$7
 - #9 Printing History of the First Bureau Issue Plates, 1894-1903.....\$5
 - #10 Printing History of 1¢ and 2¢ Stamps of the Washington-Franklin Issue...\$14
 - #11 Printing History of Second Bureau Plates Used for Sheet Stamps.....\$10
 - #12 1954 Liberty Series Plate Activity Precancel Checklists.....\$12
- Also available: Checklist of Booklet Covers, 1900-1975\$2

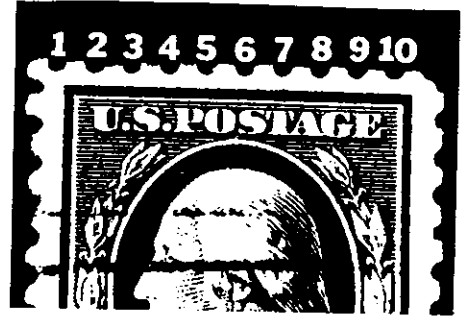
Checks payable to B.I.A.

Order postpaid from W. Cleland

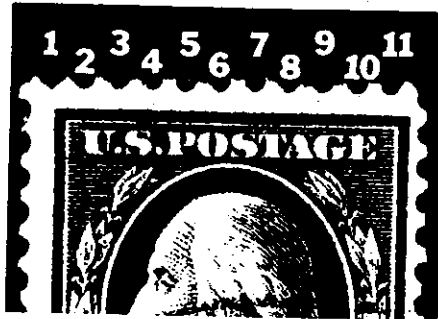
1710 University Ave., Madison, WI 53705



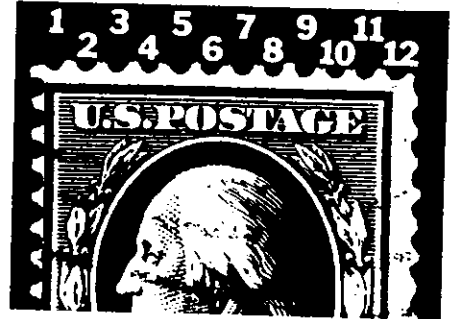
Perf 8 1/2 coil stamp



Perf 10 stamp



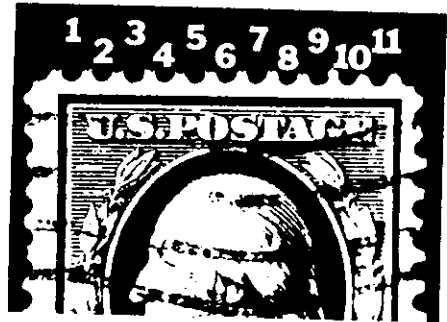
Perf 11 stamp



Perf 12 stamp



Perf 12 1/2 stamp



Perf 12 stamp with holes giving a count of 11 full holes and two half holes that must be counted for a count of 12.

WASHINGTON-FRANKLIN HEAD ISSUES

LARRY S. WEISS, BIA 8558, Chairman

Perforation Measurement and Scott #544

In an earlier committee report (July 1984), we gave a method for determining the perforation gauge measurement of Washington-Franklin head issues without using a gauge. At the time, we promised further information on perforation measurement. The opportunity has come to present a bit more on the subject due to the kindness of David B. Thompson in sending us for study the Scott #544 shown in Figure 1. Scott 544 is a 1¢ perf 11 rotary stamp that is slightly taller than normal flat plate stamps.

Perforation Measurement — Specialized

When perforation measurement is really important, we reach for the United States Specialist Gauge (Figure 2). While many may have missed the original introduction of this gauge in this journal by Richard Kiusalas (Feb. 1966), the gauge and an accompanying brief set of instructions has been almost continuously available since, through such sources as Jacques C. Schiff, Jr., Voncorp, and most recently in an advertisement in the classifieds of this journal for January 1986. It has been available on aluminum for measuring loose stamps and on plastic for use with those still on paper. A version for Canadian stamps was also available.

The Specialist gauge retains reference to the traditional hole count in a two centimeter length, the system that gives us the familiar perf 8½, 10, 11, 12, and 12½ found in the Washington-Franklin head issues. In addition, it recognizes that in some



Figure 1. Scott #544, the perf 11 sheet stamp from coil waste of vertical rotary press coils.

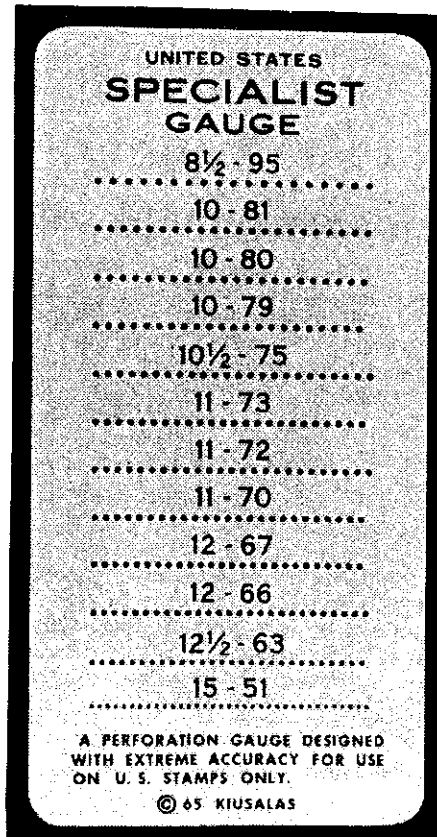


Figure 2. The Kiusalas U.S. Specialist Gauge (not shown to scale).

cases the hole centerline-to-centerline spacing is not alike on all stamps of the same nominal gauge. For example, those called perf 10 in our catalogs for both flat plate sheet and rotary press coil Washington-Franklin head issues are spaced differently. The flat plate-printed stamps have perforations spaced at about 0.079 inch (that is 79 thousandths of an inch) between centerlines of the holes, while the rotary press stamp perf holes are generally spaced about 0.080 inch apart. The Kiusalas Specialist gauge labels these 10-79 and 10-80, providing separate rows of comparison holes.

The Bureau of Engraving and Printing, when contracting for perforating equipment, did not use the two centimeter philatelic system for the perforation spacing. They did not use any system that specifies the number of holes in a certain length. Instead, the number of pins in the perf wheels were controlled, using one particular wheel diameter for all the flat plate perforator work (Leavy, 1918). Wheel diameter for the rotary press perforators were different than that for the flat plate work.

The Specialist gauge is important to our study of the #544 in that it allows distinction between two different perforation 11 gauges that have been used on the Washington-Franklin head issues. These two types of perf 11 differ principally in the spacing of the holes by about a mere 0.0005 (one-half of one thousandth) inch. While both are nominally perf 11, one is about 0.0725 inch between hole centerlines and the other, less common, gauge has holes about 0.0730 inch apart. This difference, unnoticeable in a short distance, is discernible in the length of even the short side

of a Washington-Franklin head stamp when comparing it to the Specialist gauge.

The usual "perf 11" Washington-Franklin head stamp was made using a die wheel 4.0625 inches in diameter, with 176 holes that are 0.042 inch in diameter (Stamps, 1935). This gives a distance between the centers of holes of 0.07252 inch which is perf 10.85. The Kiusalas gauge has a perf 10.94, corresponding to a spacing of holes of 0.07200 inch, called 11-72 by Kiusalas. Most perf 11 Washington-Franklin heads are of this variety.

Some perf 11 stamps, however, are the less common 11-73. The Kiusalas instruction sheet states the following for 11-73: "Same use as perf 11-72 in the period of 1917-22, though not as common as 11-72. The diameter of the perf holes are larger than the 11-72, being the same size as perf 10's."

Details of the arrangement of this 11-73 perforator have not been noted in the literature to our knowledge. Thus, we are unable to check the accuracy of the Kiusalas gauge, which is set at a spacing of exactly 0.073 inch for perf 11-73, by comparing it to the calculated spacing.

The usually reliable Joseph Leavy stated unequivocally in 1918 that, as of his writing, only a 176 pin wheel (which gives the 11-72) was used for perf 11, so the 11-73 must have been created later. Our 1935 source (*Stamps*), quoting the Superintendent of the Stamps Division at the Bureau of Engraving and Printing, also does not mention any perf 11 pin wheel other than the 176-hole type.

Assuming the 11-73 gauge is a genuine Bureau perforation (and we have no reason to believe otherwise), we are left with the possibility that it was a special set made for a very limited number of machines sometime after 1918. Considering the Bureau had at least 20 perforating machines, as is evident from contemporary photographs of the equipment while in use, it is reasonable to have perhaps only one machine fitted for the 11-73 perforation.

If we presume the same diameter die wheel as was used for perf 11-72, but allow only 175 holes instead of the 176 holes, we get a calculated spacing of 0.07293 inch or a 10.79 gauge. That corresponds nicely to the Kiusalas gauge spacing of 0.073 inch.

Perforations on Scott #544

Returning to Scott #544, we note Kiusalas (Feb. 1966) stating that this "perf 11" stamp was actually a compound perf 11-73 X 11-72 on all of the several examples he had measured. In a later article (June 1966), he implies it is a rule that a genuine 544 will measure the compound perf 11. To the knowledge of the committee, this has gone unchallenged in the past twenty years.

Well, as you may have guessed by now, the example of 544 that David Thompson sends is not perf 11-73 X 11-72 as Kiusalas says it should be. Instead, it is perf 11-72 all around. It comes with a 1985 Philatelic Foundation Certificate stating that it is genuine and the chairman's examination concurs with that opinion. See Figures 3 and 4 for its comparison with the Kiusalas Specialist gauge, confirming that 11-72 is at the top as well as at the side. The bottom and other side also measure as 11-72.

How can this small, but apparent, discrepancy exist in a genuine example of 544?

The difference in perforation measurement is too large to be accounted for by a shrinkage problem. These stamps are perforated when dry and only very small variations in paper size resulting from humidity could affect the perforations — too small an effect to be measured by the Specialist gauge. Thus, we need to look at the available information regarding the usage and production of Scott #544 for an answer.

11 - 73



11 - 73



11 - 72

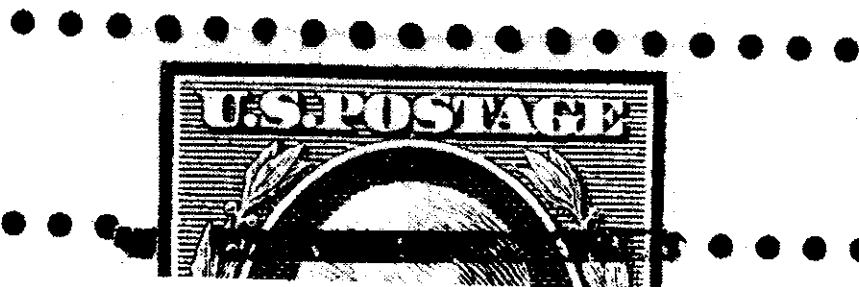
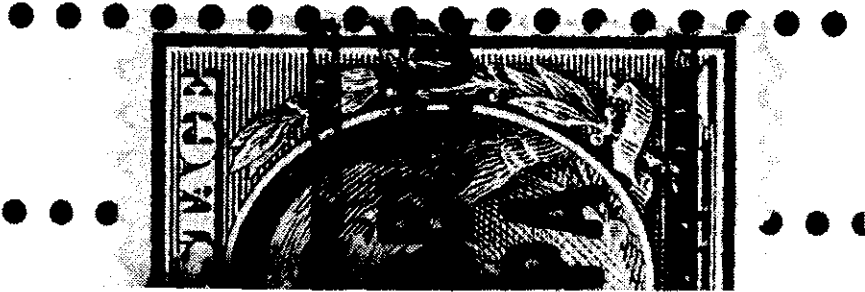


Figure 3. Comparison of the top of the Figure 1 stamp with the Specialist gauge, showing that it is perf 11-72. The technique used to make a comparison with the gauge is to line up the stamp's left three perfs with three holes on the gauge and then determine if the perfs at right match the expected hole locations.

11 - 73



11 - 73



11 - 72

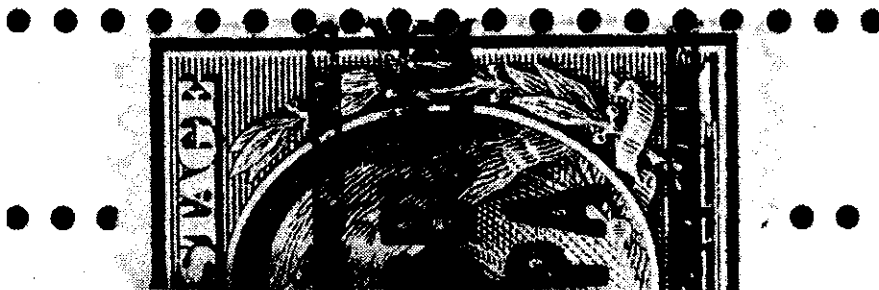


Figure 4. Comparison of the right side of the Figure 1 stamp with the Specialist gauge, showing that it is perf 11-72.

Usage of Scott #544

Scott #544 is known (according to Sloane, 1941-1951) percancelled from such diverse locations as:

Binghamton, N.Y.
Detroit, Mich.
Richmond, Va.
Cleveland, Ohio

Chicago, Ill.
Saint Louis, Mo.
Pittsburgh, Pa.
San Francisco, Calif.

Kiusalas (June 1966) adds Lynn, Mass. and Nashville, Tenn. to that list.

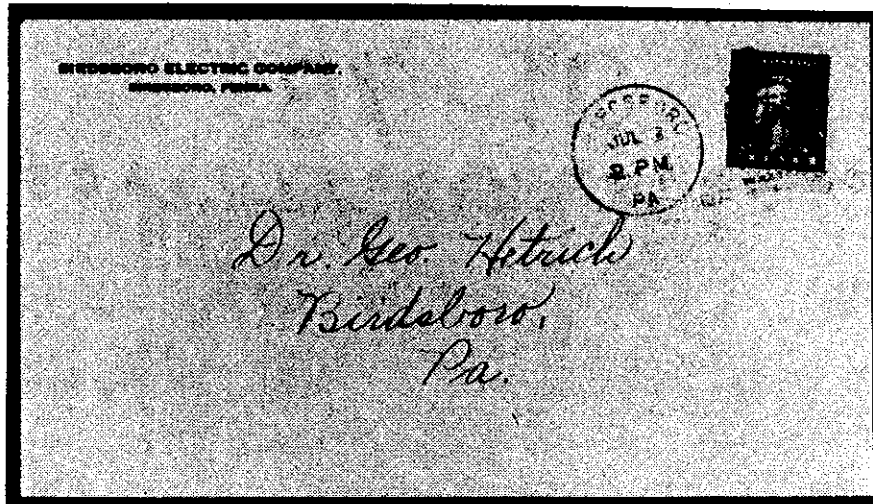


Figure 5. Scott #544 on cover, July 3, 1923.

Kiusalas estimates that at least 90,000 were used as precancels. Sloane records a post card with a Dec. 21, 1922 date from Jackson, Mich. The dates of cancellation of examples recorded by Armstrong (1979) include March 19, 1921 (San Francisco), July 3, 1923 (Birdsboro, Pa., mistakenly recorded by Armstrong as Pittsburgh, Pa.), (see Figure 5 for that item) and a 1924 year-dated copy. We add the Dec. 22, 1922 (Cleveland, Ohio) usage shown in Figure 6 to the list. George Brett reports to us a Nov. 27, 1923 use on a post card from Richland, Neb. The various examples are said to show some variations in color.

It is therefore likely that 544 was produced and distributed over at least a three year period beginning in 1921, many copies were issued, and they were widely distributed.

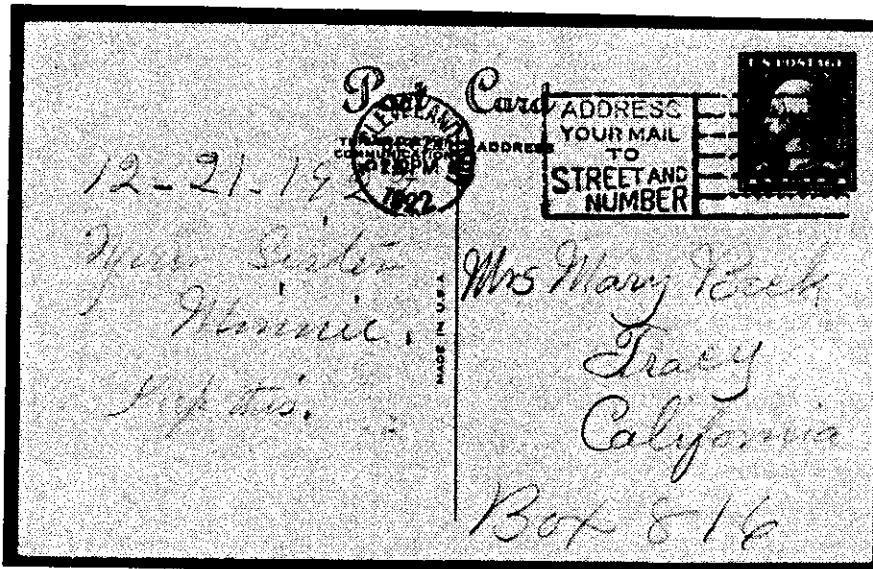


Figure 6A. Scott #544 on post card, December 22, 1922. Note Minnie's brief remark: "Keep this." The handwritten date confirms the postmarked date.



Figure 6B. Front of the Figure 6A post card. Minnie had written at top in pencil: "1922 from Minnie" further confirming the date and indicating the card was to be saved for sentimental reasons. It is unlikely she would have appreciated the philatelic significance of the card. One wonders where Minnie's other Christmas greetings went!

It was not recognized by collectors when current, being first discovered in the mid 1930s by George R. M. Ewing (per Herst, 1979) or E. F. Hartwell (1938), whichever one chooses to believe. Max G. Johl (Bureau Specialist, 1936) was the first to write of the discovery. In a similar article (Stamps, 1937), he recognizes Hartwell's find of a pair to be the first he saw. It made its first appearance in a Scott Specialized U.S. catalog in the 1939 edition, numbered as 544B.

The earliest date of usage contradicts by two years the Scott 1986 Specialized catalog which states it was a 1923 issue. We are unaware of the basis of Scott's date. One possible source is Hartwell's article. He postulates that in 1923 a special set of perforators was made as an experiment. Johl links the discovery of Scott 544 with that of Scott 596, the similar rotary press sheet waste stamp from a 1923 issue. The date given by either writer was not intended to be an "issue" date and is now obviously incorrect. Scott catalog revision is in order.

Production of 544

Coming from imperforate stock that was waste from the production of rotary press sheet stamps (Scott #542 and 543), one could expect the waste to be allowed to accumulate and then periodically put to use when a sufficient quantity collected or the need arose for its use. This would explain the variations seen in examples, such as those in color and perforation. It is quite possible that some 544s had their horizontal perforations made on the infrequently used 11-73 production equipment, while others went through the regular perf 11-72 equipment.

Thus, we would expect that the careful comparison of other #544s (particularly those with Pittsburgh, PA precancels) with the Kiusalas gauge would produce additional examples that are 11-72 all around. Readers are invited to send the results of comparisons with the Specialist gauge of any #544 stamps having Philatelic Foundation certificates.

Use of Specialist Gauge

The use of the Kiusalas gauge, while not common in all of U.S. philately, should become standard practice for Washington-Franklin head issue collectors. Its use assists in confirming the identity of stamps and in ascertaining the genuineness of the perforations, although to a decreasing extent as fakers become more sophisticated. Genuine stamps could also be used for perforation comparisons. However the Specialist gauge solves the problem of finding such odd reference stamps as a perf 11-73.

The gauge is only occasionally noted in the popular literature (e.g. *Stamp Collector*, 1979; *Linn's*, 1983). Even in this journal, it is referred to infrequently (e.g. Lee, 1985). It is unfortunate that it has not been more generally accepted as the standard and the catalogue listings revised to give the Kiusalas gauge readings that are possible. A developing problem in achieving its general acceptance is the lack of additions to the gauge to accommodate new perforation layouts on recently-issued U.S. stamps. However, that does not affect the Washington-Franklin head issue collector.

More will follow on the Specialist gauge measurements of Washington-Franklin head stamps, since some interesting and unexpected findings have been made.

Thanks go to Randall Brooksbank for the examples of 544 on cover. In addition, the chairman thanks the following for comments improving this report: George Brett, Wallace Cleland, John Hotchner, and David Lee.

References:

- Armstrong, Martin A. *The Washington-Franklins 1908-1921*, Second edition, Lawrenceville, NJ, 1979, pg. 116-8.
- Hartwell, E. F. "The Newly Discovered Perf. Eleven Rotaries" in *Weekly Philatelic Gossip*, June 4, 1938.
- Herst, Jr., Herman "The Day No One Came" in *The Stamp Wholesaler*, Jan. 26, 1979, pg. 60-1.
- Johl, Max G. "Two New Major Varieties" in *The Bureau Specialist*, Nov. 1936, pg. 149-50.
- Johl, Max G. "Two New Major Varieties of United States Stamps" in *Stamps*, Aug. 7, 1937, pg. 197-8.
- Kiusalas, Richard A. "Specialized Perforation Gauges" in *The United States Specialist*, Feb. 1966, pg. 60-1.
- Kiusalas, Richard A. "The One Cent 1921 Perf. 11 Rotary No. 544" in *The United States Specialist*, June 1966, pg. 242-3.
- Ladd, Bob "Anything and Everything U.S." column, *Stamp Collector*, Nov. 20, 1976, pg. 8.
- Leavy, J. B. "Fake Perforations" in *The Philatelic Gazette*, May 1918, pg. 154.
- Lee, David G. Q and A Corner in *The United States Specialist*, Aug. 1985, pg. 337.
- "Perf gauge evolution" in Question Corner, *Linn's Stamp News*, Nov. 7, 1983, pg. 6.
- "Perforation Spacing on the 1908-19 Issue" in *Stamps*, Nov. 23, 1935, pg. 310.
- Sloane, George C. Four articles on 544B and 544 from 1941 in *Sloane's Column*. BIA, 1961, pg. 308-09.
- Weiss, Larry S. "Determining Perforation Without a Gauge" in *The United States Specialist*, July 1984, pg. 315-7.

WASHINGTON-FRANKLIN HEAD ISSUES

LARRY S. WEISS, BIA 8558, Chairman

Specialist Gauge Measurements

An earlier committee report (October 1986) showed the advantages of using the U.S. Specialist Gauge (Figure 1) for measurement of Washington-

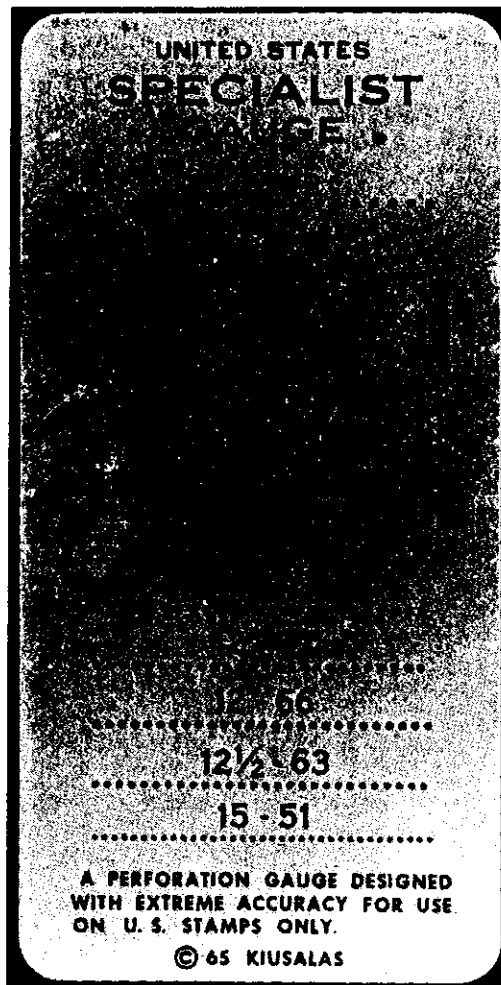


Figure 1. Kiusalas Gauge, reproduced same size as original from a photograph. Slight inaccuracy may be present due to the reproduction process.

Franklin head stamps. Based on the reader response, we find sufficient interest in this system for perforation measurement to present the Specialist Gauge readings for each of the Washington-Franklin head issues. Details regarding acquiring the gauge are given at the end of this committee report.

The Kiusalas instruction sheet, shown in Figures 2a-d, only gives general information as to the expected gauge reading for the stamps involved. Since readings for some of the Washington-Franklin heads may be, in some cases, either of two close gauges, the information presentation by Scott number given here will facilitate using the gauge and allow more positive identification of fakes.

Expected Specialist Gauge Readings

The following provides the Specialist gauge readings that the committee would expect to measure on Washington-Franklin head issues genuinely perforated by the Bureau of Engraving and Printing:

Scott #	Description	U.S. Specialist Gauge Reading
331-342	DL wtmk	12-66
348-356	Coils	12-66
357-366	Blue papers	12-66
374-382	SL wtmk	12-66
385-389	Coils	12-66
390-396	Perf 8 1/2 Coils	8 1/2-95
405-407	New designs	12-66
410-413	Coils	8 1/2-95
414-423	8¢ & up	12-66
424-440	Perf 10, SL wtmk	10-79
424a	1¢ Perf error	12-66 X 10-79
424b	1¢ Perf error	10-79 X 12-66
425c	2¢ Perf error	10-79 X 12-66
425d	2¢ Perf error	12-66 X 10-79
428a	5¢ Perf error	12-66 X 10-79
441-447	Coils, flat plate	10-79
448-458	Coils, rotary	10-80
460	\$1 issue	10-79
461	Experimental	11-72
462-478	Perf 10, no wtmk	10-79
486-497	Coils, rotary	10-80
498-518	Perf 11	11-72
519	Old design	11-72
523-524	\$2, \$5	11-72
525-528B	Offsets	11-72
529-530	3¢ Offsets	11-72
536	Rosback	12 1/2-63
538-541	Coil Waste	11-72 X 10-80
542	Coil Waste	10-80 X 11-73
543	Rotary sheet	10-80
544	Sheet Waste	11-72 or 11-73 at top, bottom, or both X 11-72
545	Coil Waste	11-72
546	Coil Waste	11-72
546a	Waste variety	11-72 X 11-72 X 11-72 X 10-80
547	\$2 new color	11-72
K1-K18	Shanghai overprint	11-72

AT LAST!

A perforation gauge that will accurately measure all 12 perforations that exist on United States stamps.

Why struggle with gauges that are only close, and sometimes not close.

Specialist

Gauge

MADE OF

HEAVY

U

DUTY

ALUMINUM

S

By Richard Kiusalas

Figure 2a. Kiusalas' instruction sheet.

This list includes the booklet panes within the larger group, e.g., 331a is as given 331 - 342. The list does not include the normally perf 11 stamps that are perf 10 at the top or bottom such as #511a. These are not readily treated even using the Specialist gauge and therefore require separate study.

The list was developed considering Kiusalas' information sheet supplied with the gauge, experience in using the gauge for over 10 years and a committee project to actually measure numerous examples of each stamp (excepting rarities where study was limited to the few held by participants). Thus, the list does not directly follow the information sheet in all cases.

Overcoming Difficulties in Measurement

Many committee members employed optical magnification (magnifying glasses, stereo microscopes, etc.) when using the Kiusalas Gauge to assist in obtaining accurate results. Several still noted difficulty in making distinctions between perf gauges having only one thousandth of an inch difference in spacing, e.g., distinguishing 10-79 from 10-80. The difficulties were mostly encountered when the short sides of single stamps were being measured. We recognized this problem and where possible sought to use blocks rather than single stamps as the source of our data.

In the course of this investigation, a number of anomalous results were reported to the chairman, mostly involving used singles. Used stamps presented

SPECIALIST GAUGE

This gauge is designed to correctly measure all perforations that occur on United States Stamps. Perforations were first measured in Europe and the European method of using millimeters was, of course utilized. In the case of United States Stamps, this is absolutely incorrect. Every stamp made by, or used in the United States has had both the design and the perforations basically made in inches or fractions of an inch. Every perforating machine used in this country has had the pins which do the perforating spaced in 1000's of an inch - NOT in millimeters. The number on the left represents the approximate number of perforations in a distance of 2 centimeters. The numbers on the right represent the ACTUAL distance between the center of the perforation holes in thousandths of an inch. As this was the basis on which perforation equipment was designed, it is the only TRUE way that perforations can be measured and classified.

- PERF. 15-51 First perforation used 1857-1861.
- PERF. 12-66 Used in 1861 on all stamps till 1914 except the 1910 coil. In 1943 used only on the overrun Nations.
- PERF. 8½-95 Used 1910-4 on Flat Plate Coil Stamps.
- PERF. 10-79 Used on all Flat Plate Stamps 1914-7; Also appears on 1923 Rotary.
- PERF. 10-80 First used in 1915 on Rotary Coils. Used on 1923 Ro-

Figure 2b. Kiusalas' instruction sheet.

problems, most likely, due to dimension changes resulting from soaking. To assure consistency of results, we went to unused stamps, in blocks if available, to confirm results.

It has become apparent that some stamps will not measure as expected. This does not automatically mean that they are faked or of a new perforation gauge, as one or more complicating factors could be at work. The perf pin spacing over the relatively short distance involved may not have been accurately placed, or perhaps the paper may have changed dimensions since perforation, due to soaking for removal or a change in humidity.

The chairman acted as a referee in some cases to attain greater consistency in the results. We believe we were able to obtain adequate confidence to confirm the expected measurements, however, some unexpected results did arise.

Unexpected Findings

The unexpected findings in the committee's measurements of perforations include:

tary Issue and Coil Waste Stamps. Still in use today.

PERF. 10-81 Practically the same as 10-80, but does not appear after the 1922-6 period.

PERF. 11-72 First used in 1915 on 2¢ watermarked stamps. Became generally used in 1917 on all Flat Plate Issues. On issues of 1918-22 used on offset printings and rotary. Today used on Giori Press Stamps.

PERF. 11-73 Same use as perf 11-72 in the period of 1917-22, though not as common as 11-72. The diameter of the perf holes are larger than the 11-72, being the same size as perf 10's.

PERF. 12-63 Only used on 1¢ offset in 1919.

PERF. 11-70 Used in combination with 10-75 Rotary Issues 1926 to date.

PERF. 10-75 Used in combination with 11-70.

PERF. 12-67 Used on High Value Revenue Stamps starting 1914.

The above information is the result of much time and research in the field of perforations on United States Stamps. This research will continue for many questions remain unanswered.

Figure 2c. Kiusalas' instruction sheet.

Perforation 11-73: We rarely noted examples that were truly perf 11-73, but those supposedly 11-73 were usually between 11-72 and 11-73, as if 11-72 1/2.

Perforation 10-80 on Flat Plate Stamps: Some rows expected to be 10-79 on flat plate stamps may measure closer to 10-80.

Perforation 10-81: Only a few stamps were found with 10-81 perforations.

Each of these unexpected findings are discussed below.

Perforation 11-73

We had expected that some stamps would be found with the perf 11-73 perforation. We had previously reported the 11-73 on Scott #544 (Weiss, 1986) based on the examination of a used single. We now have found perfs matching or close to 11-73 on the following Washington-Franklin head issue Scott numbers: 498, 500, 501, 503, 529, 538, 542 and 546.

Wallace Cleland first reported the situation regarding the 11-73 gauge reading based on his gauging of examples of Scott #542:

On two examples of 542 that I have, I measured 10-80 by 11-72.5 — that is, I get something in between 11-72 and 11-73. I also get this for the 542 pair Kiusalas sent me along with the gauge when I bought it — he said it was 11-73 by 10-81. Since it is a vertical pair,

one can accurately measure the vertical perfs, but since it is only one stamp wide (and this is the narrow direction of the stamp), I really can't tell whether it is 10-80 or 10-81. It looks fine with either perf, and frankly, I don't think you can tell any stamp perf apart if it is only a difference of one thousandth of an inch. You need at least pairs to have a long enough run of perfs.

Anyway, I think the "11-73" is actually 11-72.5 and is the normal vertical perf on 542. While horizontal perfs were put in with a row of pins that stamped all the perforations at once (the printed roll was perfed in this direction before it was cut up), I do not know what they did in the vertical direction. [They could have] cut the web into sheets first and then perfed them vertically, or [they could have] had perforation wheels that perfed the web continuously. In the latter case, one could have something different from flat plate, since an entirely separate machine would be used.

The "perf 11" female perf wheels were 4-1/16 inch in diameter, with 176 holes around the periphery. By calculation, the center-to-center distance between holes would average 0.07252 inch, or just about halfway between 11-72 and 11-73 on the Specialist Gauge. Considering tolerances on hole spacing, some

UNITED STATES			
Spacing Inches	Actual Perf	Specialist System	Scott Listing
.095	8.29	8 $\frac{1}{2}$ -95	8 $\frac{1}{2}$
.081	9.72	10-81	10
.080	9.84	10-80	10
.079	9.97	10-79	10
.075	10.50	10 $\frac{1}{2}$ -75	10 $\frac{1}{2}$
.073	10.79	11-73	11
.072	10.94	11-72	11
.070	11.25	11-70	11
.067	11.75	12-67	12
.066	11.92	12-66	12
.063	12.49	12 $\frac{1}{2}$ -63	12 $\frac{1}{2}$
.051	15.44	15-51	15

CANADA			
Spacing Inches	Actual Perf	Specialist System	Scott Listing
.063	12.49	12 $\frac{1}{2}$ -63	12 $\frac{1}{2}$
.064	12.30	12-64	12
.065	12.11	12-65	12
.066	11.92	12-66	12
.067	11.75	12-67	12
.068	11.58	11 $\frac{1}{2}$ -68	11 $\frac{1}{2}$
.070	11.25	11-70	11
.072	10.94	11-72	11
.083	9.49	9 $\frac{1}{2}$ -83	9 $\frac{1}{2}$
.090	8.75	8 $\frac{1}{2}$ -90	8 $\frac{1}{2}$
.099	7.96	8-99	8

Figure 2d. Kiusalas' instruction sheet.

perfs could be 11-72 and others 11-73 from the same wheel. As George Brett points out to us in a letter, the Bureau of Engraving and Printing had problems from the beginning of their stamp production in 1894, and there is a limit where we are looking at minor equipment variations within normal manufacturing variations rather than significant equipment design differences. For a discussion of the manufacturing problems in making perforation equipment, see Bergstron (1984).

Perforation 10-80 on Flat Plate Stamps

From Kiusalas' instruction sheet, Perf 10-80 was expected only for rotary press coils and coil waste. We found, however, some vertical rows on stamps that are normally perf 10-79. These included Scott 424, 425, 438, 439, 441, 462a and 463. It seemed there were too many stamps involved for faking to be a factor. We offer no immediate explanation except the reminder that small manufacturing variations in specific wheels may be present, and we are getting down to the limitations of humans in measurement when making such small distinctions.

Perforation 10-81

Kiusalas' instruction sheets indicate we might find a Washington-Franklin head issue with perf 10-81 where we might expect 10-80. We have seen this on only two stamps, a Scott #448 and a 543. More were expected, and this minor variety is decidedly difficult to find.

Reader Help Requested

We would appreciate hearing of other Washington-Franklin head stamps that are perf 11-72.5.

Does anyone have Kiusalas' records on the perf gauge measurements of stamps? We had heard some years ago that he had measured the perfs on a large number of stamps and had asked others to do the same for him. We are unaware of the publication of the results of the records he may have made.

As interest warrants based on reader comment, we may further discuss the findings in future committee reports.

Acquiring a Specialist Gauge

The original aluminum Specialist gauge can still be purchased from stamp and supply dealers advertising from time to time in the philatelic media.

There have been other printings of the Specialist Gauge printed on flexible clear plastic so that the gauge may be readily used for stamps on cover. We are unaware of any current source for such gauges.

There is a Canadian stamp version of the gauge. We have not examined that item.

Acknowledgements

Thanks go to the following for participation in this committee effort: G. Brett, P. Beutel, W. Cleland, M. McIndoo, H. Cross, D. Lee, W. Henderson, W. Holloman, N. Khachaturian and F. Marx.

References

Bergstron, Robin P. "Drilling Precision Stamp Cylinders at NBS" in *Manufacturing Engineer*, April 1984, pp. 76-9.

Weiss, Larry S. "Perforation Measurement and Scott #544" in *The United States Specialist*, October 1986, pp. 447-54.

BIA Publications For Sale

Encyclopedia of Plate Varieties on Bureau-Printed Postage Stamps by L. C. "Cloudy" French

\$25 members \$35 nonmembers

Sloane's Column

by George B. Sloane,

\$25 members \$40 nonmembers

Pat Paragraphs

by Elliott Perry,

\$40 members \$55 nonmembers

Essays and Proofs of U.S. Internal Revenue Stamps

by George T. Turner,

\$30 members \$45 nonmembers

The Bureau Specialist, Vol. 1-3

by George W. Brett,

\$40 members \$50 nonmembers

Durland Standard Plate Number Catalog (1997 edition)

by Kim Johnson,

\$16 members \$20 nonmembers

BIA Plate Number Checklist: Plates 1-20,000

by Wallace Cleland,

\$28 members \$40 nonmembers

BIA Plate Number Checklist: Plates 20,000-41,303

by Kim Johnson,

\$26 members \$35 nonmembers

60 Year Index of U.S. Specialist

by Richard Hall,

\$24 members \$35 nonmembers

The Airmail Special Delivery Stamps of the U.S.

by Ralph Sloat,

\$8 members \$12 nonmembers

The Prexies

by Roland Rustad,

\$24 members \$30 nonmembers

Make checks payable to the Bureau Issues Association, Inc. Foreign postage extra. Send orders to: B.I.A., P.O. Box 2641, Reston, VA 20195.



FOR THE COLLECTOR OF POSTAGE AND REVENUE
STAMP ISSUES OF THE UNITED STATES

April 1997
Bureau Issues Association, Inc.