Notes on the Perforations of The Stamps of Guatemala

by Eric Dyck

In 1969, our Society, the ISGC, published *Guatemala, A handbook on the postal history and philately of Guatemala*, Volume 1, commonly known as G-1. This handbook covers stamps issued from the first stamp in 1871 through mid 1902. G-2 was published in 1974, and started with the Waterlow issues of 1902 and ended with issues in 1971. G-3, covers issues from 1971 through 1990. The handbooks contain a wealth of information, including information on perforations.

About 1977, Vernon Turnburke began comparing the perforations of stamps in his collection with those in the handbooks, and noted not a few discrepancies. An engineer by training, he used a very accurate device called and optical comparator for his measurements. In the course of his investigation, he noted that the perforation gauge measurement of a mint, gummed stamp is different, by a significantly measurable amount, than that of a used stamp with the gum soaked off. The amount and direction of the change is dependent on the type and grain of the wood fibers used to make the paper. In general, a stamp with gum will have larger dimensions than a stamp without gum, and thus a lower perforation gauge.

While corresponding about Guatemalan perforations with other ISGC members, it became evident that measurements of the same stamp using his method were different than those of members using the perforation gauge then in common use, the Instanta. He showed that the plastic in the "Old" Instanta gauge (yellowish in color, Fig. 1), and the "New" Instanta gauge (clear plastic, Fig. 2) was not dimensionally stable, and the gauges tended to change in size. All of the perforation measurements used in G-1 and G-2 were made using the Old Instanta gauge, and measurements in G-3 were taken with the New Instanta.

You may ask, Why is this important? What difference does a variation in 0.1 – 0.2 perforation gauge make, when most stamps are only reported to within ½ perforation gauge? The answer can be found in the specialty study of the Waterlow issues. Research has shown that between 1902 and 1922, Waterlow and Sons used seven different perforation machines, with validation by specialist collectors of other countries that used the company, such as China. Many of these perforation gauges were within 0.2 of each other. These different gauges were assigned letters, from A – H, in G-2.

What is a modern philatelist to do? Which gauges are accurate and stable?

My interest in Guatemalan perforations started when I discovered a previously unreported stamp: SC #414, ISGC #1140 (perf 11.4 in G-2, 11½ in Scott), perf 12.6. This led to inquiries, a study of Mr. Turnburke's correspondence, and eventually to a study of various perforation gauges.

As a sidebar, I'll share with you the techniques I used in my study. The gauges, rulers, and stamps were scanned into a computer at high resolution after calibrating the scanner, and measurements were taken using the Measure Tool in Adobe Photoshop. The data and calculations from the study are noted in Table 1. I believe the measurements are accurate to within 0.1mm. The gauges I used were: Old Instanta, New Instanta, Old Linn's Multigauge (OLM), New Linn's Multigauge (NLM), the Scott/Linn's Multigauge (SLM), Precision U.S. Specialty Multi-Gauge (USS), and the gauge produced by the Buildings Study Group of the Germany Philatelic Society (BSG). As one can see from the Table, none of the older gauges are accurate enough for the study of early Guatemalan perforations. The modern gauges are fine so far, and with modern manufacturing methods, will most likely be dimensionally stable over time.

A note: In Photoshop, an individual stamp may be scanned, cropped, enlarged, digitally placed on a digital perforation gauge, and moved around on the computer screen to determine its perf gauge very accurately without having to squint (Fig. 3). But it takes some time.

Measurement of the perforations of the Guatemalan stamps listed in G-1 and G-2 with modern gauges results in higher perf readings than those listed, from + 0.1 in the lower range, to + 0.15 or more from gauge 16 – 18. Likewise, discrepancies will be found with G-3 as well. And, one may need take into account the differences between used and mint stamps. Scott lists perf gauges only to the closest 0.5. Future updates to the handbooks will use measurements based on modern gauges.

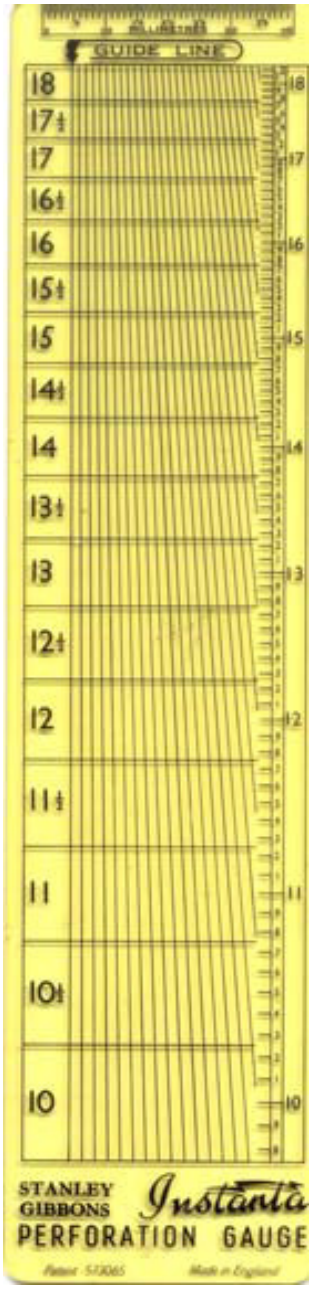

Fig. 1
"Old" Instanta

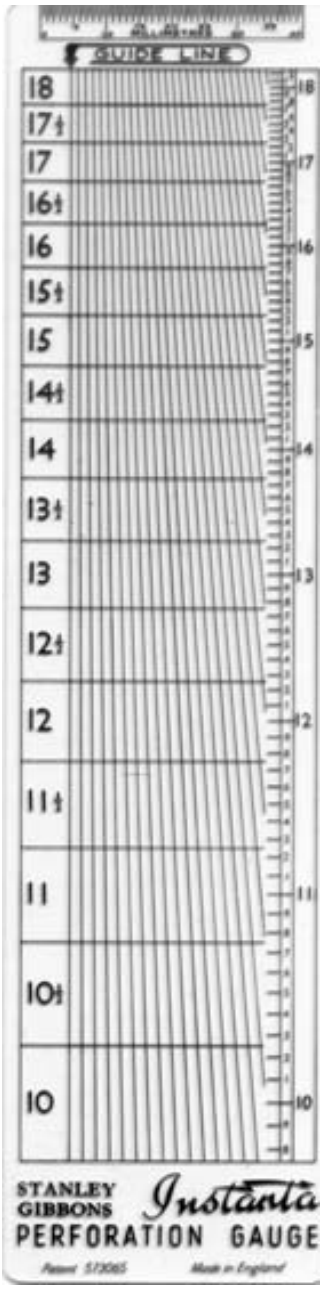

Fig. 2
"New" Instanta

Table 1

Gauge	*Measured Pixels for 10 perfs*	*Measured Perf*	*Gauge Perf*	*% Error*
Old Instanta	792	10.10	10.00	1.00
	719	11.13	11.00	1.18
	656	12.20	12.00	1.67
	607	13.18	13.00	1.38
	563	14.21	14.00	1.50
	527	15.18	15.00	1.20
	495	16.16	16.00	1.00
	467	17.13	17.00	0.76
	440	18.18	18.00	1.00
New Instanta	804	9.95	10.00	0.50
	733	10.91	11.00	0.82
	668	11.98	12.00	0.17
	618	12.94	13.00	0.46
	572	13.99	14.00	0.07
	535	14.95	15.00	0.33
	502	15.94	16.00	0.38
	473	16.91	17.00	0.53
	448	17.86	18.00	0.78
Old LMG	990	8.08	8.00	1.00
	883	9.06	9.00	0.67
	793	10.09	10.00	0.90
	718	11.14	11.00	1.27
	660	12.12	12.00	1.00
	609	13.14	13.00	1.08
	566	14.13	14.00	0.92
	529	15.12	15.00	0.80
	496	16.13	16.00	0.81
New LMG	997	8.02	8.00	0.25
	888	9.01	9.00	0.11
	799	10.01	10.00	0.10
	725	11.03	11.00	0.27
	664	12.05	12.00	0.42
	614	13.03	13.00	0.23
	570	14.04	14.00	0.29
	532	15.04	15.00	0.27
	499	16.03	16.00	0.19
S/LMG	996	8.03	8.00	0.38
	887	9.02	9.00	0.22
	799	10.01	10.00	0.10
	726	11.02	11.00	0.18
	665	12.03	12.00	0.25
	614	13.03	13.00	0.23
	570	14.04	14.00	0.29
	532	15.04	15.00	0.27
	499	16.03	16.00	0.19

USS	986	8.11	8.10	0.12
	877	9.12	9.10	0.22
	790	10.13	10.10	0.30
	719	11.13	11.10	0.27
	660	12.12	12.10	0.18
	609	13.14	13.10	0.31
	566	14.13	14.10	0.21
	507	15.78	15.75	0.19
BSG	889	9.00	9.00	0.00
	799	10.01	10.00	0.10
	726	11.02	11.00	0.18
	666	12.01	12.00	0.08
	615	13.01	13.00	0.08
	571	14.01	14.00	0.07
	533	15.01	15.00	0.06

Fig. 3
Scott #414 (ISGC #1140) Superimposed on BSG
Unlisted perf 12.6+