Rates problem

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THE massive cover shown in Figure 1 is somewhat damaged, and moreover, has been kept together by scotch tape (mostly on reverse and likely applied by a postal clerk), and worse, is missing a stamp. However, the latter can be excused, as the endorsement on reverse reveals (Figure 2; *Rec'd Bad Order*).

Figure 1. Shanghai–Wilmington, air registered AR (2 March 1948)
Obliqued AR handstamp. From Shanghai office of Du Pont to home office.

Figure 2. Reverse of cover in Figure 1
With ms *Rec'd Bad Order/Ohlinger.* Just below that is a red NY & WASH RPO with the same guy's name appearing at the bottom W.M. OHLINGER. The missing stamp plausibly had gone missing before it reached Ohlinger, so we can view the cover as if it were in fine condition . . . .

Not only is the cover large, but so is the franking. The envelope was mailed from Shanghai to Wilmington (DE) on 2 March 1948, during a period of high inflation in China. The total postage amounts to Chinese National Currency (CNC) 899,000 Yuan. It is traditional to denote Yuan with a dollar sign ($), which we will do henceforth.

The envelope was sent by air, with registration and AR services added (for more about AR, see [H]). **We want to determine the most likely rate that applied.** This is complicated by several factors. One is that rates changed very quickly in this period; another is that air mail postage was charged per ten grams as a supplement to ordinary postage (and first class was per 20 grams); and of course, there is a stamp missing.

We can never be absolutely certain about how the rates were made up (for example, there is always a small likelihood of clerical error). Nonetheless, by analysing the rate structures, we will come up with a plausible construction, which involves a surprise. Fortunately, Chinese rates are well documented in [SB].

It is easiest to begin with the flat rates (independent of weight). The first item we have to deal with is AR—*avis de réception.* A direct translation of the usual Chinese characters for this service is *double registered,* which appears in typescript at the lower left. The problem with AR service is that some jurisdictions insist that the AR fee be paid on the cover, and others that the fee be paid on the accompanying AR form. All other Chinese AR covers in my collection (about twenty, in the period 1915–1950, have the AR fee paid on the cover. Figure 3 shows a Chinese AR card used in 1948 (but not in the same rate period as the cover—these cards are not common, and to find one in the same two-week rate period as the cover would be remarkable), and there are no stamps on it, reverifying that the AR fee was paid on the cover.

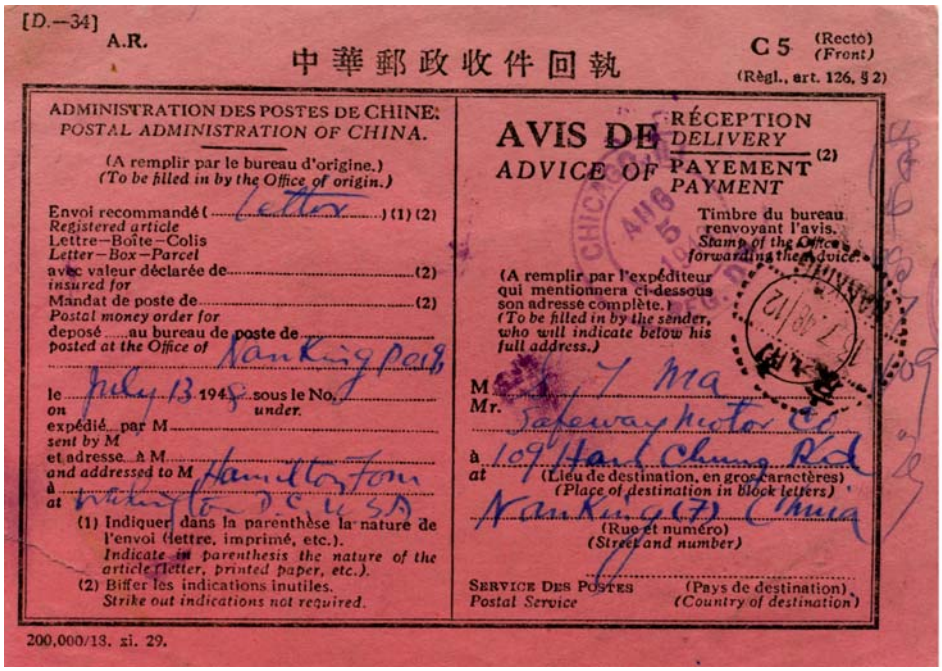

Figure 3. China AR card (1948)

No stamps applied. For a registered letter to Washington from Nanking, mailed 13 July, delivered 9 August, and the signed card returned to sender as intended (unfortunately the date on the receiver is entirely in Chinese characters, so I don't know what it is—any help would be appreciated).

The white paper stuck to the reverse of the card is probably part of the original envelope to which the card had been attached.

AR & registration fees. These are listed in [SB, part II, table 10B, p 57] (from now on, this type of reference will be abbreviated to [SB, 10B]). For the period 1–16 March 1948, the AR and registration fees to UPU countries were (CNC) $15,000 and $20,000, respectively, and these are independent of weight. This leaves us $864,000 plus the value of the missing stamp to account for.

Air mail. Air mail rates to almost all destinations, including the US, were independent of destination, and

given as a supplement to the regular postage. The supplementary air mail rate for the rate period 1–16 March 1948 was $45,000 per ten grams [SB, 9.10]. Since this has to be added to the regular postage, we cannot do anything yet.

First class. The rate in the same period (1–16 March 1948) for first class to UPU destinations was $14,000 for the first 20g, and $9,000 for each additional 20g; to do computations, it is easier to think of this as 9,000 per 20g plus $5,000.

Already, we see there is a computational problem—the air mail supplement and the first class (surface) rates use different weight steps. Every increase by 20g after the first results in a rate increase by $99,000, but 10g increments are more complicated.

Let's see what happens if we make an assumption about the missing stamp. It was beside a pair of $5,000 stamps, and there are some chads remaining in the perforations on the right (Figure 4), suggesting that the missing stamp was part of a strip of three (this is discussed in more detail in the Appendix). If we assume that the missing stamp was indeed denominated $5,000 and the envelope was sent first class, can we make the rates come out right?

Figure 4. Hanging chads

In this high resolution close-up (originally at 1200dpi, then magnified by a factor of 2.6 in each dimension) of the neighbours of the missing stamp, we see that there are bits of the perforations between the two remaining stamps, and at the left. Also, we see that a portion of the left Shanghai datestamp goes right over the chads; presumably this means that the missing stamp was applied with almost no space in between it and its neighbour. This is *consistent* with there having been a strip of three (of the $5000 stamp), but could also have occurred if the missing stamp had been applied very close to the others.

The answer is no (see the Appendix). The nearest we can get to our unaccounted-for $869,000 is $896,000, for 180g. Before giving up on $5,000 as the denomination of the missing stamp, we look at some postal rates for other than first class.

The only possible "other" rates are newspapers, book, printed matter, commercial papers, and samples (we can dismiss post cards and literature for the blind) [SB, 3C]. In this rate period, the rates were $3,000 per 50g. Unfortunately, we still can't get the exact rates to come out. However, there are further conditions on these rates. Samples require a minimum of $6,000, which is irrelevant to this cover. However, the commercial papers rate has a minimum of $14,000—if the weight is less than 200g, the commercial papers charge would be $14,000. (*Commercial papers* include documents such as contracts which might not otherwise qualify as printed matter because some bits—such as signatures—are handwritten.)

Amazingly, this does allow us to get the rate exactly—if the weight were 180$^+$–190g, then the flat commercial papers rate applies and added to the airmail rate, the total is exactly $869,000! This does not show that this must be the rate, simply that it is the only possibility if we assume the postage was computed exactly and the missing stamp is denominated $5,000. Unfortunately, the next weight step commercial papers can also be achieved with a $50,000 stamp, but no other weights can be reached exactly.

A more complete discussion of the rate possibilities and the relevant computations is given in the appendix. By far the most likely possibility is airmail commercial papers weighing 180$^+$–190g, and the missing stamp is denominated $5K.

The combination, commercial papers with AR, is rare, but not unheard of; I have a couple of other examples (from other countries and in earlier periods).

Appendix: Computing the rates

At Bernard Biales' suggestion, I am including the computations of potential rates. The predominant rate is the airmail supplement of $45000 per 10g. The first class rate is $9000 per 20g plus $5000. The commercial papers rate is $14000 up to 200g, but $3000 per 50g if the weight exceeds 200g (thus a 210g commercial papers parcel would be charged 5×$3000 = $15000. The other third class rates are $3000 per 50g.

We have to account for $864,000 plus the value of the missing stamp, using only the airmail supplement and *one* of the following rates: first class, commercial papers, or other third class. We use the standard abbreviation, K for 000 (thousand).

Eliminating first class. For airmail plus first class, 160$^+$–170g requires 17×45K + 9×$9K + $5K = $851K, meaning the missing stamp would have denomination $–13K. Although the concept of negative denominations is interesting, it is impossible here. Hence the weight would have to be larger.

The next weight range, 170$^+$–180g, requires $45K more (the first class postage is unaffected, but the airmail supplement goes up by one level), $896K, which would require the missing stamp to be $32K, but none exist. The next weight range adds one stage to both the first class and airmail rates, increasing the postage by $54K, and this would require the unlikely denomination of $86K. This process continues—the weight ranges 190$^+$–200g and 200$^+$–210g require the missing stamp to be denominated $86K + $45K = $131K and $131K + $54K = $186K respectively, both of which are impossible. It takes a lot of iterations before this process yields a round number for the denomination of the missing stamp, and by that time, the denomination is way too high.

Commercial papers. If the parcel weighed 200g or less, the commercial papers rate was $14K, meaning we have to account for $850K plus the value of the missing stamp. Since 18×45 = 810 < 850, the weight must require at least 19 steps, that is, 180$^+$–190g or more. At 19 steps, the airmail supplement is $855K, which requires only that the missing stamp be $5K, and this is perfect. The next step up yields an airmail of supplement of $900, which requires that the missing stamp be $50K—which is possible (but not if we believe that the missing stamp was part of a strip of three).

One more step in weight puts us over 200g, and the commercial papers rate for 200$^+$–250g is now $15K, meaning we have to obtain $849K plus the missing denomination as a multiple of 45K, starting with the 21st step. The multiples of $45 corresponding to the five steps 21–25th are respectively $945, 990, 1035, 1080, 1125, which respectively force the denomination of the missing stamp to end in a 6 or a 1 and be over $95K, which is impossible. Finally, it takes an enormously high weight before the missing stamp can be close to a round number, and at that point, the denomination is too high.

Other third class. Over 200g, the rates are exactly the same as those of commercial papers, and we have already eliminated this possibility. Under 180g yields an airmail supplement that is much too small (see the analysis in the commercial papers section), leaving two remaining weight classes. We have to obtain $864K – $12K = 852K plus the missing value as a multiple of $45K. For 180$^+$–190g, the value is $3K, which is plausible, but I don't know whether a $3K stamp existed. The remaining range requires a $48K stamp, which did not exist.

One (minor) argument against the missing stamp being $50K is that this denomination is the second largest on the cover (there is a $100K stamp—look for the bi-coloured red foreground and blue background) and the most frequently used, and one would expect that the large denomination stamps were

placed first and more or less together. The the \$50K stamps are all clustered to the right, mostly in the two blocks of eight and six, and it is reasonable that the stamps at the left, including the missing one, were of smaller denomination.

With a small clerical error. Thus far, we have assumed that the original postage paid the rates exactly. With such a large number of stamps and complicated rates, it would not be surprising if there were either a clerical error, or convenience overpayment. The latter we can limit to at most \$1K, since two \$2K are used on the cover.

If we assume clerical error up to ±\$3K, can we ensure that first class is still eliminated? If a \$30K stamp existed, then the 170^{+}–180g airmail first class rate discussed in the first class section above would be within \$2K. However, I think it unlikely that such a high denomination stamp (if it existed) would be put on the left rather than the right where all the other high denomination stamps are. The other first class airmail rates cannot be reached to within \$3K by any plausible denomination.

With the other rates, it is possible to get within \$2K, simply because the commercial papers rate exceeds the other third class rates by that amount in the 150^{+}–200g weight range.

Summary of computations. There is a likely exact rate, a less likely one, a remote possibility, and a possible but highly implausible approximate rate. The two more likely ones are air mail commercial papers and either 180^{+}–190g or 190^{+}–200g, requiring respectively \$5K or \$50K as the denomination of the missing stamp. The other exact possibility is one of the third class rates other than commercial papers, airmail, and weight 180^{+}–190g, requiring a \$3K stamp, if such existed.

Copies of both the \$5K and \$50K stamp are already on the cover, which is why I view these two possibilities as more likely than the other case. The hanging chads suggest, but not conclusively, that the missing stamp was part of a strip of three, hence a \$5K stamp. Moreover, it seems more likely that all the higher denomination stamps would have been placed first, and near each other, suggesting that the missing stamp at the far left is not \$50K (or \$30K for that matter).

Here are the possibilities in order of likelihood.

- missing \$5K stamp and commercial papers airmail rate for 180^{+}–190g
- missing \$50K stamp and commercial papers airmail rate for 190^{+}–200g
- missing \$3K stamp, third class other than commercial papers, airmail, and weight 180^{+}–190g
- clerical error of \$2K, missing \$30K stamp, first class, airmail, and weight 170^{+}–180g.

I think that the second possibility is unlikely, and the third and fourth remote.

References

[H] David Handelman, *AR—avis de réception,* Postal History Society of Canada, Ottawa, 2002. Copies are still available at Can\$25.69 plus postage! (*Cheap like borscht.*) The only book dealing exclusively with worldwide AR.

[SB] Pingwen Sieh & J Lewis Blackburn, *Postage rates of China, 1867–1980,* Directorate General of Posts, Taipei, 1980. This is the definitive English language book for Chinese rates in this period.

Prepared in (plain) TEX, *the* typesetting language.

Comments on this article are solicited. My e-mail address is rochelle2@sympatico.ca