Dear friends and colleagues,

Attached please find for your perusal and consideration a summation of my claim for a partial decipherment of the Indus Valley script, the fruit of 33 years of work. Against the consensus of expectation, particularly among Western scholars, it seems to me most likely that the chief language underlying the inscriptions is an early form of Indo-Aryan or Sanskrit, antecedent perhaps to the oldest specimens of the Vedic language, although I believe the question of the dating of the Rigveda and some of the other Puranic sources to be less certain than is often averred. In making this claim, I am not necessarily saying that the vernacular language or languages spoken in the primordial Indus region were Indo-Aryan; official and court languages often diverge from the vernacular, as with medieval Latin in western Europe and Manchu in the Qing Dynasty. But the many names and titles deciphered herein, as well as certain clues about the grammar of the language involved (scant though they be, given the nature of the available evidence) all point at the very least towards a significant measure of Indo-Aryan influence, limited perhaps to nomenclature, theonyms, and notations of assets such as predominate in these inscriptions.

To spare you all the tedium of wading through the detailed description of methodology and the lengthy, often repetitive tables of evidence contained in the monograph, here, in brief, is a description of how the results were derived. Three decades ago, when I was in the early stages of this project, I came to believe, by careful comparative study of the best corpus then available, the Mahadevan concordance, that certain sign fields (herein called "M fields") almost certainly denoted notations of assets, especially weights and measures. These early results were published in my MA thesis, in 1996 and again in my first monograph, "The Indus Valley Script: A New Interpretation," in 2014. While some of the conclusions in that first monograph have turned out to be incorrect, the hypothesis that the fish signs and certain other signs that participate in M fields must—in those contexts, at least—denote weights, and hence notations of assets or transactions, has only been strengthened. Moreover, certain signs occurring in such contexts had graphology that made perfect sense if an Indo-Aryan reading were assumed, and this assumption was reinforced by what seems to me to be clear evidence, detailed in the accompanying monograph, that the language of the inscriptions is susceptible to forming noun compounds, a very productive typological feature, not only of Indo-Aryan, but of Indo-European in general— but not of Dravidian. All of this circumstantial evidence seemed to warrant positing values for a handful of common signs found in M fields, and then using them as "anchor values" to try to obtain values for other signs. Of these, perhaps the most important is the sign usually represented as Υ , Υ , or some other similar allograph, very frequently found in conjunction with various stroke numerals. Because of its rather obvious likeness to a blade of grass or staff of grain, I suggested in 2014 that it might have the value *pala*, a very important ancient Indian weight (of gold or silver), and also, more suggestively, the word for 'straw' (cognate with Latin *palea*, French *paille*, etc.). All this, and more, is described in my 2014 work. What I did not understand then, however, was why this sign often occurs outside such M field contexts as the final element of what must be names of some sort (for example, $\Upsilon\square$, $\Upsilon\mathbb{W}$, etc.). Were these all to be understood as assets of some kind? This was the conclusion I came to in 2014, and it was wrong.

Several years after that, it suddenly occurred to me that perhaps vowel length was immaterial to this writing system, and that perhaps, in addition to the value *pala*, Ⅎ / Ⅎ could be read as *pāla*, 'guard, protector,' as well. The significance of this is that a very large number of Sanskrit names and titles end in *-pāla*, and this reading allowed the possibility that this sign both denoted the weight unit *pala* and the suffix *pāla* in many very important names and titles yet to be determined.

Another crucial clue extracted from the M fields involved the very important digraph ⸤⸥ (read from right to left, as with all Indus inscriptions). This sign pair is extremely common, and almost always occurs as the rightmost (i.e., final) element in an M field. The hypothesis described in the 2014 monograph is that this sign pair represents the Sanskrit term *mātra-*, 'measure; exact; in the exact amount of,' a very common word (cognate with 'meter,' by the way), that may either denote a specific standardized amount or may be deployed as what I have termed a "pleonastic number/measure" at the end of an expression of quantity with the sense of 'exactly/amounting to X,' such as *śata-mātra-*, 'exactly 100' or *krośa-mātra-*, 'exactly a kos (a measure of distance).' Moreover, the sign ||| is suggestive of the numeral 3, and the term *-tra-* is one of the ways to denote 'three' in Sanskrit. If this were true, it would imply a value of *ma/mā* for the sign ⸤⸥ and its allographs, a value that would be expected to be relatively common and randomly distributed, as this CV syllable is in nearly every language.

Finally, the peculiar sign 𝍩, resembling a man holding a bow and with significant distributional overlap with the "bow sign" ⟁, suggesting similar sound values, is sometimes found in certain M field-like contexts. Without going into details here (they are given both in this present work and in 2014), I hypothesized that this sign might have the value *dhan-* or *dhana-*, since this term in Sanskrit means both 'money, wealth' and also (as *dhan-u-*), 'bow.'

This set of assumptions, along with the suggestive typological clue of noun compound formation, seemed to me sufficient basis for using them as hypothetical Indo-Aryan "anchor values," and trying to see whether plausible values of any other signs could be obtained in inscriptions where one or more of these signs occurred. For starters, Ⅎ𝍩, noted above and found quite often as the sole or final element in initial clusters or "P fields," became *dhana-pāla*, which means 'treasurer, guardian of the treasury,' a term that might be reasonably expected to occur in contexts where asset notations are found to occur.

Another obvious candidate for decipherment was the common sign ⊔, which often occurs as a final element in what appear to be names, as well as in the very common context noted above, Ⅎ⊔, evidently another important name or title ending in *-pāla*. But which one? There are a very large number of candidates. To find the solution, I used a method which I denote by the prosaic term "cross-checking." Using a substring-searchable online Sanskrit dictionary (the Monier-Williams Sanskrit-English dictionary, digitized by the University of Cologne over a decade ago, but regrettably taken offline very recently, along with a similar online Tamil dictionary, without explanation, and replaced with a far less useful version), I was able to make a series of queries

based on searching, e.g., for all words ending in -pāla (i.e., ⊔ = X-pāla), and then cross-checking the very broad results with other possibilities indicated by the data, e.g., "words ending in -dhana," the digraph ⋔⊔ / X-dhana also being found in the corpus as a plausible word-unit. Cross-checking a series of felicitous contextual clues like these (described in detail in the monograph), I was able to ascertain that, under the conditions assumed, ⊔ had only one admissible value, and it was a very nice one: bhu/bhū. As a common name-ender, bhu means 'born of, arising from,' and elsewhere it means 'earth; soil,' as in bhū-pāla, 'earth-protector; king; prince' (⊔) and bhū-dhana, 'prince, monarch (lit., 'whose treasure is the earth')' (⋔⊔). In this way, I was able to add ⊔ / bhu/bhū to my growing list of anchor values, and continue deploying the technique of cross-checking to try to obtain additional values.

One important part of my methodology involved the differentiation between two very different genera of writing, which are both found in the "patterned" inscriptions. One type, which I have termed "notational" writing, is abbreviated or otherwise conventionalized or shorthand-type notations typical, across writing systems, of contexts like accountancy, metrology, mathematics, and calendrics. In English, instead of writing, e.g., "fifteen dollars," or "five pounds, ten ounces," or "the twenty-ninth of July two thousand and twenty-three," we write, respectively, "$15.00," "5 lb. 10 oz.," and "7-29-2023" (or "29-7-2023," or "7/26/2023," etc.). All these are examples of notational writing, and such writing is found in the Indus inscriptions in M fields and other numerical contexts. What I call "transcriptive" writing, on the other hand, is any writing that seeks to transcribe, more or less faithfully, what is actually said; "fifteen dollars" is an example of such, as is most of the writing in this missive. The transcriptive portions of the corpus are to be found in the P and C fields in patterned inscriptions (see monograph for details of these two sign fields), as well as the entirety of "complex" inscriptions. Accordingly, although I have exploited the telltale patterning of certain signs in M fields/metrological contexts, in order to extract several key "anchor" values, most of the phonetic values in the decipherment that ensued were obtained by working with sign strings in P and C fields and in complex inscriptions. The failure to differentiate notational from transcriptive-type writing in the past, in my view, has led some investigators to the unintended conflation of two incommensurable writing types and a corresponding skewing of statistical data and (in some cases) claims about underlying typology.

I wish I could say the ensuing work was as straightforward as what I have so far described. But in fact, the bulk of it—carried out during the Covid pandemic while I was living in Shanghai with little else to focus on—involved enormously tedious and often unsuccessful exercises in trial and error, particularly in the early going. But in the end, I was able to obtain phonetic or logographic values for roughly 60 signs, many of them among the most common entries in the signary, but a few of them less common but readable nonetheless either as a result of graphology or of fortuitous placement in available inscriptions. And the results have been wondrous, after more than three decades of what often seemed like futility. In the inscriptions that I have so far been able to decipher, in whole or apart, there appear names of personages that I had never heard of, but that I learned of for the first time in the course of this work, which served to confirm, over and over, that I was on the right path. There is, for example, the name of one king Somabhu, which crops up on a single very worn seal bearing the inscription ati-rāja so-ma-bhu. As I subsequently learned, there is indeed a mythical king of the Lunar Dynasty who had that name (I

am not claiming that this is he, or that the Harappans were actually the Lunar Dynasty, but only that the name is attested as a king name). Or consider the inscription on the "Lord of Beasts" seal, whose first two signs, from right to left (aside from the stick figure, which I do not think is a part of the inscription, since it is much larger than the other signs and lopsided, and also never occurs elsewhere in any analogous contexts) are -⋈⋉, for which signs I had previously obtained the values ⋈=*kara* and ⋉=*vasu*, leaving a perplexing reading *vasu-kara* (the third sign, ⑄, has the meaning 'property', and so the inscription seemed to read *vasu-kara* PROPERTY). But **vasukara-* is not an attested name, and neither are any variants with lengthened vowels, such as, e.g., **vāsukara*. But I discovered, purely by accident, that another very similar name, Vasukra, *is* not only attested, it is very significant. Two different rishis who were authors of Vedic hymns bear that name, and so does another attested personage, a grammarian. Hence it appears that the "Lord of the Beasts" seal is actually the "property" of one Vasukra. Other names that arose out of my decipherment include Raviprabhu, Atmasukha, Ratisena, Carudeva, Vibhuvarman, Satyadeva, Sukhadeva, and many others. Additionally, titles and caste designations like *bāhujā*, 'Kshatriya,' -*śarman*, and -*varman* are found. There are also a large number of theonyms and divine epithets, usually in P fields, such as *soma*, *samjā*, *svabhū*, etc., that emerge from the data.

To summarize the results:

1. The inscriptions fall into two broad classes, appellative (which simply give a name or title) and attributional (which, in addition to including a name/title or names/titles, also include an attribution of assets). These two classes coincide, roughly, with what Wells and I have termed "complex" (or non-patterned) and "patterned" inscriptions, respectively.

2. A certain number of important signs, often found singly as entries in the P-field or initial position, signify certain important full names, honorifics, and titles, these being: ◇/♡, *pati*, 'lord; husband; ⊕, *deva*, 'god; divine or noble personage'; ⋈, *śri* or *suri*, honorific title; 'wise personage'; ⟩, *rāja(n)*, 'king, monarch; and ⋉, *vasu*, 'good, virtuous; treasure, wealth; very important category of divine beings,' as well as the less common ⬖, *śri-pati* (attested honorific and title; compound of ⋈ and ◇) and ⬥, *śri-pati-deva* (high honorific; compound of ⋈, ◇, and ⊕). The arguments for these values are set forth in detail in the monograph.

3. The Indus signs denote either simple V or CV-type syllables, or more complex syllable configurations (especially CVCV), or are logographs. Verbs/predicates in particular are represented logographically.

4. Both vowel length and vowel quality are often conflated; so, for example, the common sign ⑄ stands not only for *su* and *sū*, but also, at times, for *so*.

5. Consonantal values often are limited to place of articulation (bilabial, e.g.), and frequently conflate oppositions like voiced/voiceless and aspirated/unaspirated.

6. Final vowels in signs of the form VCV or CVCV can be deleted, as in the sign ⌘/*ati*, *āti*, which in the common titular digraph 〉⌘ reads *ati-rāja*, 'high king,' but in the equally common name element ⋃⌘ reads *āt-ma*, 'soul.'

7. Neither noun cases nor verb inflections appear to be made explicit, possibly in the interest of economizing space, but also possibly because this writing system may not have a full literary form in non-sphragistic contexts; it may, like proto-cuneiform, proto-Elamite, and other early writing systems, be purely for such nomenclatural and transactional contexts.

8. The purpose of the attributional inscriptions, with their notations of assets, is likely to be one or both of the following: Either they represent assets deposited at temples (which, recall, served as banks anciently), and hence may have functioned, along with the bearer's name or title, as a potential pledge of assets on deposit; or, they are so-called "donative inscriptions" representing some sacred donation to a god or other authority, presumably also at a temple. Donative inscriptions are very characteristic of both Hindu and Buddhist historical India from the earliest written records.

9. A large number of signs, including common ones, are yet to be deciphered, and while some may remain such, the newfound potential of AI, properly parametrized with this information and with access to a substring-searchable database, could probably be harnessed to cross-check many layers deeper than I've been able to do with my very limited intellect.

Having arrived at preliminary results, for which I deliberately restricted my initial efforts to the Mahadevan concordance, I then spent many months testing them against all the new and extremely useful data in Wells' and Fuls' ICIT, a final cross-check which invalidated only a couple of previously-proposed sign values, while dramatically vindicating the rest with new data (including a few inscriptions from Dholavira), and even giving me several additional unlooked-for new sign values.

I realize that it is customary to seek publication before going public with potentially important results. Accordingly, a paper much shorter than the attached monograph (though still quite lengthy) is now under submission at a peer-reviewed journal. But being well-aware of the history of decipherment and the very high barriers of skepticism and even ridicule that often must be overcome, I am under no illusions as to the likelihood that the enclosed results, in their full form, will be publishable in any traditional sense anytime soon. This is owing not only to the results, which are bound to be controversial, but also to the fact that it is impossible to make a convincing case for them within the usual 4000-6000 word limits typically imposed by scientific journals. And while there are certainly errors in the enclosed work, I am confident enough that the conclusions are mostly correct that I've decided to share them with those most likely to have a genuine, unbiased interest in testing them. I have also posted the monograph to academia.edu, so I consider this now to be public information; feel free to share this email or the attached monograph with any others who might be interested, and feel free to cite with attribution. As far

as I'm concerned, these results, correct or not, belong foremost to the people of India and greater South Asia, and in this spirit, I would rather they have unfettered access to them sooner than later.

Finally, nothing in these results is the result of aspirational biases or preferences. As one who did his PhD research at Cornell documenting a dialect of Tamil, who has spent years both studying Dravidian languages and publishing in the field of Dravidian linguistics, and who harbors a deep and abiding love for the magnificent Tamil language and culture, no one would be happier than me to discern a Dravidian solution to the Indus Valley script. But the information available, it seems to me, leads ineluctably to a different result, one which, I hope, I have sufficiently documented, both as to readings and to methodology, to allow for reproducibility (or falsification, as the case may be). Although the Indus corpus holds no votive hymns, royal edicts, or literary fragments of the sort that make compelling historiography, it does disclose to us the names and titles of many forgotten personages, and it reveals critical information about their economy and at least one of their languages. I hope that this work may contribute to the progress of Indus research, so that as full a decipherment as possible may be achievable before many more years have passed.

Best regards,
Steven Bonta