

Preface

Mathematics is often praised. Sometimes it is praised too much. The reverence toward mathematics makes us forget that mathematics can be useful as well as useless, beautiful as well as ugly, deep as well as merely tedious, mundane – or divine. By its nature, it is all and none of the above. How shall we learn to evaluate it soberly?

The praise of mathematics is associated with its antiquity and purity. That is why historians of mathematics are often attracted to the oldest mathematics and its most abstract presentations. But, in fact, mathematics is old and new, pure and mixed, abstract and concrete.

If we look at the oldest forms of mathematics, we forget that mathematics is constantly renewed – invented and reinvented. If we look at the most abstract presentations of mathematics, we forget that it is human, all too human. It is humans who form activities and languages that we call “mathematical”. It is them who make up rules of reasoning and methods of calculation. They are the ones who design presentation and manipulation tools. They are those who try to fit all of the above into more or less coherent wholes.

Another view of the mathematical past is from the standpoint of the here and now. This is what happens when we look for what we know today in the records of the past. Projecting the peaks of modern knowledge all the way onto the echoes of the most distant past, mathematics invariably appears as a universal whole. We find an eternal, harmonious mathematics, because we actively ignore and set aside all the contingent odds and ends that would set it out of tune.

This is why a project such as this catalogue is so crucial. Looking carefully at the remnants of a past – not so distant past – mathematical culture, we can see its peculiarities. Strange ways of measuring. Odd ways of calculating. Weird problems and solutions. Alien forms of study. It is by encountering these peculiarities, that we can start asking some important questions about mathematics.

If they did not do things the way we expect them to be done, is this simply because of ignorance? Or, perhaps, what is odd and irrational for us, served a purpose for them, which we simply fail to grasp? Did they choose a method which is difficult or imprecise, or even (what we would today consider) wrong, because they did not know any better? Or, perhaps, given their practice, training and their tools, those methods and answers appeared intuitive and sound?

If they did or did not engage in some kind of mathematics, is it simply because it was known or unknown to them, easy or difficult to reach? Or is this a reflection of their interests and goals in learning and presenting

mathematics? Did they engage in some kinds of mathematics simply because it was necessary or useful? Or did they make their choices so as to manifest their virtuosity and flair? If some piece of mathematics is difficult or obscure, is it because they could not do any better? Or did they preach knowledge in this way so as to appear as the venerable keepers of obscurities and the occult?

To answer any of these questions, to understand what mathematics really was for a certain culture, we have to understand not only its content, but also its milieu. Who taught it? Who studied it? Where? Was it common or specialized knowledge? Was it intended for classrooms or workshops? For the merchant, artisan, pundit or the bureaucrat? Was it meant to facilitate one's engagement with the world, or to apply administrative power via knowledge that is out of reach for "common folk"?

To answer such question it is not enough to look at some highly venerated "classics". To answer them, we need synoptic views of entire mathematical cultures, especially those that bridge what is considered high, scholarly mathematics with elementary, pedagogical aspects. The current catalogue allows us to do just that. It allows us to understand what mathematics was for the people of Odisha, how it was formed and reformed by the people of Odisha, before and after colonial times. It is an amazing resource, which can support a rich and fruitful research program.

The result of this research will not be bound to clichés about the eternity, beauty and purity of mathematics. Such research will show us that mathematics is sometimes useful and sometimes useless, sometimes beautiful and sometimes ugly, sometimes deep and sometimes merely tedious, sometimes emancipatory and sometimes an instrument of authoritarian rule. More importantly, it can tell us why some people, at a certain time and place, formed mathematics in their specific ways.

What such research could provide is not a transparent reconstruction of the past. We will never know the past as it "really" was. First, because a lot has been lost. But, more importantly, because we know too many new things to be able to forget them – even for a while – so as to really know the past itself. However, even if we do not know it in itself, our engagement with the past will bring us face to face with some of what is alien about it. And this alienation could teach us something more important than the past itself. This alienation could teach us what might be different about our present mathematics, and about our future too. We may imagine different ways of teaching, practicing and viewing mathematics. We may imagine different mathematics.

And once we imagine what could be different, perhaps we can even make things change.

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