

Lettre aux éditeurs : "Reply to Nils P. Heeßel"

Mary Coleman, New York

Dear Editors*:

In a 2004 issue of *Le Journal des Médecines Cunéiformes*, the respected scholar Nils P. Heeßel discussed the history of publication of medical cuneiform texts and the accompanying methods and problems found when reading these tablets. He wrote many useful and relevant comments and acknowledged the work of many authors. Perhaps disheartened by his review, he discouraged the practice of trying to identify the actual names of diseases found in the texts by studying the symptoms associated with these names, even though he acknowledged that such names are abundant and need to be addressed. Instead he suggested that scholars should analyze the etymology of the words used as disease names or investigate the order of disease-lists for inherent hierarchies. Here is some of what Dr. Heeßel wrote:

The desire to know from which diseases the Mesopotamians suffered, what insight they had to bear is comprehensible as this would give us insight into the medical problems of the Ancient Mesopotamians according to our own terminology. However the medical texts are quite unsuited to answer this kind of question, which can be much better rejoined by paleoanthropological examination of skeletons.¹

He also made statements such as "illness and disease are culturally determined." This letter is not an attempt to give *himiṭ šà* (heartburn) to Dr. Heeßel, but to take a respectful look at his suggestions. It will address his following three concepts:

- 1) examination of ancient skeletons is the best way to identify ancient Mesopotamian diseases,
- 2) the cuneiform medical texts of Mesopotamia are "quite unsuited" for medical diagnosis by modern physicians, and
- 3) the named diseases in these medical texts are unlikely to be identified and correlated with modern disease names.

1) It appears that Dr. Heeßel believes that one should have physical evidence of a body in order to accurately diagnose a disease. Since the Mesopotamians did not preserve the bodies and the organs of their dead as the Egyptians did, this rules out everything with the exception of ancient bones already found or to be found in the future. He states that examination of skeletons is the best kind of data suited to answer questions about ancient diseases.

Certainly ancient skeletons are fascinating and revealing. To the extent which they become available, they will add to our knowledge about the disease entities of these ancient peoples. What is called clinicopathological review – correlating symptoms during life with evidence of the disease found after death by autopsy – is the ideal way to diagnose a disease entity; this is the method used to firmly establish many of the diseases in the modern medical corpus. However, at least in the United States, only about 5% of deaths now are submitted to autopsy, because in the overwhelming number of cases, the attending physician is able to list the patient's diseases and cause of death without an autopsy. His

* Note des éditeurs. Dans l'éditorial qui accompagnait JMC 1 (2002), les éditeurs souhaitaient que la revue soit un lieu d'échange. Cette lettre de Mary Coleman illustre ce tiraillement qui parcourt l'histoire de la médecine, entre d'un côté le clan des médecins et de l'autre l'armée des historiens et des philologues, notamment quand il est question de diagnostic rétrospectif. Morale : une discipline qui débat est une discipline qui vit et qui progresse.

¹ Nils P. Heeßel, 'Reading and interpreting medical cuneiform texts - Methods and problems.' *Le Journal des Médecines Cunéiformes*, 2004(1) – no. 3, page 7.

examination of the patient during life, his writing down, his recording of the signs and symptoms he observed, becomes the patient's medical record. This can be used to verify his medical diagnosis by other doctors. The physicians who review such records can refer to the modern textbooks of compiled medical knowledge when examining such records regarding the accuracy of the diagnosis.

The question to be addressed is whether the ancient doctors ever wrote down the symptoms of their individual patients in a way that we could understand today and, further, whether the symptoms were ever put together into specific disease entities described in any kind of compiled medical handbook. It is known that a number of medical assumptions were not shared between modern and Mesopotamian medicine, particularly in the area of etiology, although cuneiform descriptions in the categories of symptoms and prognoses often are very informative. There are no Mesopotamian case histories compiled in a modern format and the ancient medical handbook sometimes is not arranged in the same way we do today. Nevertheless, this letter argues that enough specific information was observed and written down to give a general answer to both those questions as a qualified "yes". The tablets we are working with appear to be, as originally written, medical observations of patients as noted by their doctors. Why were specific named diseases given as the diagnosis on certain tablets? One way of trying to understand these tablets would be to put together all the tablets with a named disease and review the symptoms on them as a possible medical entity. This may or may not be historically correct, but it is a reasonable initial approach to trying to decipher the meaning of named diseases.

Relying on the skeletons alone, rather than using them as a supplement to description of symptoms by physicians, may reveal a misunderstanding of medical knowledge. Even assuming bones from thousands of years ago are intact enough for accurate diagnostic techniques (occasionally they are), the great majority of disease entities do not manifest themselves in the bones. From skeletal remains, one can deduce the age and the sex of the patient as well as the traumas and the osteochondropathological diseases that befell that individual. One can also deduce diseases that secondarily impact the bones and their structure, such as metastatic disease. Rarely one might be able to even identify the DNA of the individual from the skeletal remains. But limiting medical diagnosis to bones will miss most of the major disease entities of the skin, lungs, heart, brain, liver and other vital body organs, diseases described in great detail in these ancient Mesopotamian tablets.

2) The main topic of this letter is this: Can it be true that the cuneiform medical texts of Mesopotamia are quite unsuited for medical diagnosis? Let us step back and consider what would have happened if modern cuneiform scholars had decided that the Babylonian astronomical texts, with their eclipse data, were "quite unsuited to that kind of reasoning." It is known that texts which include scientific data contain information which often can be deciphered by outsiders. The scientific knowledge of a modern physician translates across cultures in a way that is not as true of linguistics, law or other more culturally-bound disciplines. As patients from the high-rises of New York to the villages of Papua New Guinea can testify, modern medicine tends to be cross-cultural, a characteristic it shares with the other sciences. The concept of cross-cultural disciplines includes ancient-modern interactions.

Of course it is immediately granted that any science by definition is never 100% accurate. But like physics, medicine can be used to observe data which generate working hypotheses and make predictions, a characteristic of science. In fact, throughout Western history until recent times when therapeutics dramatically improved, there were ineffective medical treatments for most diseases and often the main bedrock of what a physician had to offer to his patient were the possibility of a diagnosis (a working hypothesis) with its concomitant prognosis (prediction).

Yes, medicine is different kind of a science than astronomy; medicine is a less exact blend of science and art, still imperfectly understood today. However the words describing anatomy tend to be fairly consistent, and the Mesopotamian listing of anatomical parts could be quite sophisticated, ie. *kisli/kaslu*, the transverse process of the vertebral spinal column.² But it is acknowledged that the words describing

² Labat TDP 222:41

medical signs and symptoms of patients are much more open to interpretation, except for those very rare pathognomic signs which establish a particular diagnosis.

3) Dr. Heeßel has suggested that the named diseases can not be correlated with modern disease names and instead it is best to analyze the etymology of the words used as disease names or investigate the order of disease-lists for inherent hierarchies. There certainly is no quarrel with his positive suggestions, such as analyzing the etymology of words; this is invaluable. What is most useful regarding etymology is if the words are analyzed concurrently with all the medical history, signs and symptoms attached to them, as seen in the following exercise – which may explain why there are several different words for jaundice in Akkadian³.

Take the example of the named disease *ahhāzu*. This word that has several layers of meaning. It can refer to the disease itself (possibly a blocking of the bile ducts), the demon thought to cause it (⁴DIM₃.ME.KIL) or the main symptom of such a blockage which is *ahhāzu* (jaundice).

To summarize a large number of texts, when a modern doctor reads the cuneiform tablets describing both the symptom and disease of *ahhāzu* they describe the white of the eyes and skin becoming a yellow-green color, this symptom is called 'jaundice' in modern times. Jaundice is the phenomenon of bile spilling over into the bloodstream where it doesn't belong, causing the skin and eyes to turn greenish-yellow due to the pigment bilirubin. The noun *ahhāzu* is used in these texts as a symptom (jaundice) of a disease as well as the name of the disease itself. This is not the only kind of jaundice; there is another kind of jaundice described in the Mesopotamian medical texts; it is *awurriqānu/amurriqānu*/IGI.SIG₇.SIG₇.

To further add to the problem, there is a candidate for even a third form of jaundice in these ancient tablets. *Pāšittum* may be the word for a serious jaundice that is found in newborn babies. More than half of all infants have some mild jaundice at birth, but it usually gradually disappears without consequence. The jaundice occurs because of immaturity of the liver, which allows the bile to enter the blood stream. However in a few cases, the excess level of bilirubin damages the brain of the baby resulting in a neurological syndrome called kernicterus. The early signs are lethargy, poor feeding and the loss of the Moro reflex (see below). Many of these babies die; the survivors are left brain-damaged. Although not all published pertinent texts have yet been studied, the word *pāšittum* appears in some texts to refer to the type of jaundice which results in kernicterus.

The remaining two jaundices (*ahhāzu* and *amurriqānu*) appear to be described in older patients, that is, older children and adults. The etymology of the words *amurriqānu/awurriqānu* suggest the color of jaundice which stains the skin (greenish-yellow), while the etymology of IGI.SIG₇.SIG₇ suggests the location of that color in the conjunctiva of the eyes, where the hue of jaundice is most easily seen in a patient. Jaundice can be created in the liver itself where bile is originally formed; it spills over into the blood stream staining the body, due to infection (hepatitis) or scarring (cirrhosis). The *amurriqānu/awurriqānu* texts are compatible with the forms of jaundice that start in the liver.

Now we are left with the final form of jaundice *ahhāzu*. There are a number of texts describing the yellow of the eyes and skin, so *ahhāzu* also likely means jaundice. In view of the meaning of the related Akkadian verb *ahāzu* "to grab, to seize" it is possible to suppose that this form of jaundice is formed by a disease that causes the jaundice by a grabbing, blocking process. Bile leaves the liver via bile ducts which take it to the gastrointestinal tract where it is utilized to digest food. Thus jaundice can occur not only from liver immaturity or disease, but also when the bile ducts are prevented from discharging their bile into the gastrointestinal tract. This can happen when large blocks of worms are present in the bile ducts or by a cancer which gradually encroaches and grabs the bile ducts. The main presenting symptom of pancreatic or bile duct blockage for any reason is jaundice – *ahhāzu*.

In semitropical climates today, there are worm diseases where the physical presence of worms themselves can block the bile ducts and some of these chronic infections, particularly clonorchiasis or opisthorchiasis, lead eventually to pancreatic cancer. There are two types of Mesopotamian medical texts that describe the *ahhāzu* disease - 1) those that predict death and advise no physician to treat the disease⁴ – perhaps a massive worm blockage or a cancer form of the *ahhāzu* disease, and 2) those which suggest a treatment which is ingested by mouth causing the *ahhāzu* disease to leave the patient's body when his bowels move⁵ - possibly by the removal of the blocking worms.

³ M. Coleman, 'The different types of jaundice described in medical cuneiform tablets', in preparation.

⁴ Küchler Beitr. pl 20 iv 45

⁵ Küchler Beitr. pl 19 iv 27

That this medical corpus makes the distinction between different types of adult jaundice, and also carefully distinguishes them from diseases of the gall-bladder – the organ which is nestled right next to the pancreas and liver – is a considerable achievement.⁶

Now what is the likelihood that this (very oversimplified summary of a complex) review³ of the word *ahhāzu* is historically valid? Such a verdict can not be known now; this will be revealed in the future when confirmed or contested by other physician cuneiformists. Verification of the meaning of medical tablets by medically trained peers is necessary to move knowledge forward, the same principle used in all of medicine. As Dr. Heeßel points out, specialists in cuneiform have come up with different disease names for the same word. He gives the example of *di-u*, *di-lu*, so far it has been called erysipelas and black small pox. These are completely different disease entities. How can such disagreements be arbitrated?

Here at least is a suggestion for the long run – once there are four or more experienced physicians who have the ability to read medical cuneiform tablets, it would be interesting to repeat the linguistic experiment of 1857 by the Royal Asiatic Society of London. In that case Talbot, Rawlinson, Hincks and Oppert were all given a newly discovered copy of a cylinder of Tiglathpileser I; they worked on it independently and submitted their solutions sealed; when unsealed it was found that their interpretations were in essential agreement. In a similar scenario, one or more, previously untranslated, medical cuneiform texts could be submitted independently to each member of such a group of doctors and see if they come up with a similar medical interpretation. Medicine is not always exact, but there is enough consensus today to try such an experiment. This kind of medical peer work is needed, not because there will be final and absolute answers regarding each named disease, but because the field needs to work within a medical context with modern physicians, just as was done with modern astronomers for the Babylonian eclipse tablets.

We now go back to Dr. Heeßel's comment that the named diseases will be impossible to identify with modern names because "illness and disease are culturally determined". He reviewed a number of attempts by linguistic scholars to put names on specific diseases, which he felt were unsuccessful; I would rather say that the identifications may or may not be correct and have yet to be established. It certainly is true that some disease entities, psychiatric diseases in particular, have a large cultural component, but even there, the Mesopotamian physicians showed a remarkable perspicacity. There are texts which can be interpreted with what we would call today autism⁷, alcoholism⁸, self-mutilation⁹ and psychosis¹⁰.

Other disease entities which might seem particularly difficult to identify are the diseases due to infections, since infectious agents change over time. However one source of information that can be used to verify ancient infectious diseases is contemporaneous sources from nearby cultures. Recently the disease of Rameses II was identified from his mummy. In his and other Egyptian mummies, the remains of the parasite, its eggs and its DNA of schistosomiasis has been found, a disease present in modern times which afflicts thousands of people today in subSaharan Africa. Although this is not the format to review a large literature on the subject, there are Mesopotamian tablets¹¹ describing a disease DUR₂.GIG, which is compatible with the symptoms of schistosomiasis. Remains of other worms, eggs and cysts have been found in mummies – *Ascaris* (round worm), *Taenia* (tapeworm), tiny *Filaria* worms as well as *Trichinella* cysts¹². Another example is the Hebrew bible which has detailed descriptions of people with leprosy, again an infection still present in the modern age; leprosy and its stages of progression appear to

⁶ BAM 188:3

⁷ šumma izbu IV 1-2

⁸ BAM 575 iii 51-52/ BAM 59:21-24

⁹ TDP 98:52

¹⁰ BAM 202:1-3/ STT 286 ii 14-16

¹¹ AMT 40/5 iii 14-16/ AMT 56/1:1-3/ BAM 88: 1'-2'

¹² R. David, *Handbook to Life in ancient Egypt, revised edition*, Facts on File, Inc., 2003.

be detailed in MSL IX¹³. In all these cases, modern doctors will also have had the opportunity to examine patients with these diseases originally described in ancient times.

The general category of infectious disease entities due to viruses, which can mutate the most rapidly, were especially difficult for the observing physicians of Mesopotamia who did not have our modern laboratory tools; these are the tablets where the ancient differential diagnoses are often found¹⁴. In a sense it is hard to imagine that all these infectious agents could persist for so many millennia, particularly the fatal ones that need animal reservoirs to persist. No one is suggesting that exactly the same viruses caused ancient and modern forms of viral disease. The assumption is that if DNA studies are able to be done, it will be found that the infectious agents of diseases do not have the same genome in different decades, much less different millennia. Yet the hemorrhagic fever of the Marburg virus which recently in 2005 devastated patients in Angola with its very high death rate is eerily reminiscent of certain cuneiform texts¹⁵.

There are many factors which affect the expression of an infection - the patient's genotype, age and gender, dietary history, the presence of other diseases, etc. But, thanks to Mesopotamian medical tablets, we know that the reaction of the human body to certain infectious pathogens appears to persist through the ages.

Realistic obstacles and difficulties in reading the tablets

Perhaps rather than assuming that the Mesopotamian medical tablets are unsuited for disease identification, it might be more useful to concentrate on the problems to be overcome in such work. And they can not be underestimated.

First of all, there are the multitude of general problems of understanding a cuneiform text based on the historical time and place where it was written. Besides the fact that they are usually written in more than one language, there is the challenge of the external shape of each particular sign in its historical period and whether it veers away from the more familiar cuneiform toward abstract or cursive, including the handwriting particulars of the actual writer. This is especially true of the corpus of medical cuneiform tablets, which include a very wide time range of contiguous as well as successive cultures. They range from the Ebla texts of around 2300 B.C.¹⁶ to the late versions of the medical diagnostic series of at least 700 B.C.¹⁷. This is a range encompassing of 1600 years; for such a long period there can even be a question of whether they even belong to the same medical corpus. There are many examples of modification, alteration or sometimes completely altered meaning in different historical periods, particularly of the logograms themselves. ŠA is a word found in many medical texts with somewhat varying medical meanings, as well as the Akkadian relative pronoun and as a determinative; besides the problem with medical meanings, there are at least 19 different signs representing ŠA spanning the history of Akkadian. Over such a long period of time, symptoms and disease entities can sometimes have more than one name. But not always. Because it deals directly with human life and suffering, medical traditions often tend to be conservative; the Mesopotamian medical texts are sometimes a stunning example of that phenomenon.

There are many different types of cuneiform texts with medical information. Some of the earliest ones are pharmacopia or therapy texts - the Ebla pharmaceutical text of around 2300 B.C.¹⁶, the Nibru text of approximately 2000 B.C.¹⁸. Many medical tablets have texts describing medical signs and medical symptoms, at first just a few symptoms as they might appear in a single patient, often without, but sometimes with, diagnosis. Finally by the time of the diagnostic series¹⁷, the medical handbook had been

¹³ M. Coleman and L. Sassmannhausen, *Materialien zum Sumerischen Lexikon IX*, in preparation.

¹⁴ M. Coleman and J. Scurlock, 'Viral haemorrhagic fevers in ancient Mesopotamia', *Tropical Medicine and International Health* 2 (1997), 203-206.

¹⁵ TDP 158:25-26

¹⁶ P. Fronzaroli, 'A Pharmaceutical Text at Ebla', *Zeitschr. f. Assyriologie* Bd. 88 (1998), S. 225-239; M. Bonechi, 'The Second Prescription in the Pharmaceutical Text TM.75.G.1623 (III Millennium Ebla)', *NABU* 2003/26.

¹⁷ R. Labat, *Traité Akkadien de Diagnostics et Pronostics Médicaux*, Académie Internationale d'Histoire des Sciences, Paris, 1951.

¹⁸ M. Civil *Revue d'Assyriologie*, LIV (1960), pp. 59-72.

developed, and entries were standardized in the following order 1) the signs and symptoms, 2) the diagnosis, 3) the prognosis. Labat called it The Diagnostic Handbook; its Akkadian name was *sakikku* (symptoms), likely a word derived from the Sumerian SA.GIG (sick body parts). There are also tablets describing more than just passive observation of the signs and symptoms of patients. There are descriptions of a number of active examinations of the patient by the physician, as well as the study of human secretions. Some of these tablets describe tests currently performed by modern doctors. What is called today the Moro test, named after a nineteenth century Dr. Moro and used to help diagnose kernicterus, was in use several millennia earlier:

TDP 216:3 reads: 'If you suspend a baby by his neck and he does not jerk and does not stretch out his arms, he was gotten by the dust.' These are the same words found in a modern pediatric textbook describing the Moro test which is routinely used to test for brain function in infants, except for the last phrase of 'gotten by the dust'. In Mesopotamian medical tablets, this expression is used with sick children and appears to mean severe disability or death. In the modern textbook, the last phrase would read "has very abnormal brain function with poor prognosis."¹⁹

However it is not to be implied that there was a consistent pattern of increasing and improving medical knowledge over time. Some of the oldest texts were quite advanced, such as the Ebla text describing Bronze Age surgical instruments²⁰. On the other hand, many of the later texts appear to be magical rather than medical, a pattern not dissimilar to a pattern of medical/magical developments during roughly the same time period in ancient Egypt next door²¹. This raises a fundamental problem, already under investigation by a number of linguists, regarding the sorting out of Mesopotamian medical tablets from magical tablets. In fact, these two categories appear to blur in some texts. In his paper, Dr. HeeBel outlines some of the problems regarding the *ašipūtu* and *asūtu* tablets, including assigning texts.

The ability to decide what is based on medical observation and what is based on fantasy lies at the heart of this problem and modern medical knowledge can be crucial. Particularly in the Omens series, there are fantastical texts that can not be based on observation of humans (even if they could be based on animals). However some texts which seem quite hyperbolic or completely made up could have been, in fact, based on medical observation of humans:

There is a text which reads 'If a woman gives birth and from the beginning (the child's) head is full of grey hair.'²² It likely is describing a baby born with the cri-du-chat syndrome, a birth defect syndrome due either to deletion on the short arm of the fifth chromosome or a rearrangement of the fifth chromosome called a translocation. The syndrome is so named because the infant's cry resembles that of a cat.

All readers of cuneiform texts struggle with the mindset of the writer; whether the tablet is literary or astronomical or medical or from any other discipline, our work is to decipher what the writer was trying to say. Bureaucrats and poets each have their own way of thinking; so do doctors. This incredibly rich and advanced medical corpus is not "unsuited" for translation. It is a great privilege to read such advanced medicine from the ancient Mesopotamian tablets.

¹⁹ TDP 216:3. DIŠ LU₂.TUR *ki-ša-da-nu-uš-šú tuš-qa-lal-šu-ma la i-gal-lut u i-di-šú la i-tar-ra-aš ki-šid* SAHAR

²⁰ A. Archi, 'Lists of Tools', *Vom Alten Orient Zum Alten Testament: Festschrift für Wolfram Freiherrn von Soden, zum 85. Geburtstag am 19. Juni 1993*, Verlag Butzon & Bercker Kevelaer, 1995, pp 7-10.

²¹ John F Nunn, *Ancient Egyptian Medicine*. Norman, University of Oklahoma Press, 1996.

²² šumma izbu IV 1; cf. III catchline. BE SAL U₃.TU-*ma ul-la-nu-um-ma* SAG.DU-*su ši-pa-a-ti* DIRI