COVID-19 PANDEMİSİNDE DİSİPLİNLERARASI BÜTÜNLEŞİK AFET YÖNETİMİ ULUSLARARASI ÇEVRİMİÇİ SEMPOZYUMU

- INTER-DISCIPLINARY INTEGRATED DISASTER ADMINISTRATION ON COVID-19 PANDEMIC

1-2 Nisan 2021

ÖZET BİLDİRİ KİTABI
ABSTRACT BOOK

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COVID - 19 PANDEMİSİNDE DİSİPLİNLERARASI BÜTÜNLEŞİK AFET YÖNETİMİ ULUSLARARASI ÇEVRİMİÇİ SEMPOZYUMU

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1 Nisan/ April 1 : bit.ly/covid19april1
2 Nisan/ April 2 : bit.ly/covid19april2

COVID-19 PANDEMİSİ'NDE DİSİPLİNLERARASI BÜTÜNLEŞİK AFET YÖNETİMİ ULUSLARARASI ÇEVRİMİÇİ SEMPOZYUMU

INTER-DISCIPLINARY INTEGRATED DISASTER ADMINISTRATION ON COVID-19 PANDEMIC

Turkey Time (TRT) / UTC+03:00

1 Nisan Perşembe / Thursday, April 1

10.00 - 11.00 **Açılış Konuşmaları / Opening Speeches**

Sempozyum Yürütme Kurulu Başkanı, Prof. Dr. Zerrin Toprak KARAMAN-DEÜ
Sosyal Bilimler Enstitüsü Müdürü, Prof. Dr. Asuman ALTAY-DEÜ
Dokuz Eylül Üniv. Rektörü, Prof. Dr.Nükhet HOTAR
Türkiye Belediyeler Birliği Başkanı, Fatma ŞAHİN
AFAD Başkan Yardımcısı, Önder Bozkurt

Dr. Matteo Vigo, Academy of Sciences and Literature, Mainz, Germany (Keynote Speaker)
Plague, Pandemics, and Divine Punishment among the Hittites.

11.15 - 12.45 **1. Oturum / Session** Prof. Dr.Ruşen Keleş - Moderatör - A.Ü. Siyasal Bilimler Fakültesi (EM)

Prof. Dr. Sven Günther, Northeast Normal University, Changchun, China (Keynote Speaker)
Contagium, morbus, pestilentia, and Co: Epidemic Language in Latin Historians.

Dr.Dane Kurth, Southern Illinois University , USA (Keynote Speaker)
In uenza Epidemics in Antiquity

Dr.Öğr.Üyesi Sema ALP ÇAVUŞ, Dokuz Eylül Üniversitesi Hastanesi
Covid-19 Pandemi Yönetimi: Hastane Perspekti i
Pandemic Administration: A Hospital Perspective

Üniversite Tanıtımı

13.00 - 14.15 **2. Oturum / Session** Doç. Dr. Gül ÖZATEŞLER ÜLKÜCAN, Moderatör, DEÜ

Prof. Dr. Ergün Laflı-DEÜ Edebiyat Fak, Arkeoloji Bölümü, TR
Epidemics and plagues in Anatolia in ancient times and middle ages

Dr. Hugh Elton, Trent University, Canada
Impact of the Justinianic plague on Anatolia

Dr. Öğretim Üyesi Kutluğ Savaşır, DEÜ, TR
Covid-19 Pandemisinin Mimari Mekanlara Etkisi
The Impact of The Covid-19 Pandemic on Architectural Spaces

Türkiye Tanıtımı

14.30 - 16.00 **3. Oturum / Session** Prof. Dr. Metin Kozak - Moderatör,DEÜ

Prof. Dr. Tianyu Ying, Zhejiang University, Hangzhou,China (Keynote Speaker)
Covid and Impact on Tourism

Prof. Dr. Veysel Bozkurt, İstanbul Üniv,İktisat Fakültesi, TR (Keynote Speaker)
Covid 19'dan sonra Dünya
World After Covid 19

Dr. Merter Nilüfer , Munich, Germany
Bayern'de yaşayan göz doktorunun Corona süreci izlenimleri
The impressions of an ophthalmologist living in Bayern on Corona process

Dr. Öğretim Üyesi Sait Yıldırım, TR
Covid-19 Pandemi Sürecinde Boş Zamanı Değerlendirme İhtiyacı ve Tüketim
The Need to Use Leisure Time and Consumption in the Covid-19 Pandemic Process

17.15 - 17.30 **Kapanış / Closing**

1 Nisan/ April 1 : bit.ly/covid19april1
2 Nisan/ April 2 : bit.ly/covid19april2

COVID-19 PANDEMİSİ'NDE DİSİPLİNLERARASI BÜTÜNLEŞİK AFET YÖNETİMİ ULUSLARARASI ÇEVRİMİÇİ SEMPOZYUMU

INTER-DISCIPLINARY INTEGRATED DISASTER ADMINISTRATION ON COVID-19 PANDEMIC

Turkey Time (TRT) / UTC+03:00

2 Nisan Cuma / Friday, April

10.00 - 12.30 **1. Oturum / Session** Prof. Dr. Sedat Yanturali ve Prof.Dr. Gürkan Ersoy, Moderatör, DEÜ

Dr.Donald William Walsh (EM), USA (Keynote Speaker)
Prehospital Management of the Covid - 19 Pandemic as a Disaster

Prof. Dr. Selim Sunar, Brown University, USA(Keynote Speaker)
Emergency Department of Management of the Covid - 19 Pandemic as a Disaster

Prof. Dr. Arman Dagal, Harborview Medical Center University of Washington, Seattle, USA(Keynote Speaker)
Surgical Services Capacity Management During COVID 19 Pandemic

Doç. Dr. Ender Dinçer, Veteriner Fakültesi, TR, DEÜ
Viroloji Hayvan Coronavirusları, Türlerarası Geçiş ve Zoonotik Potansiyelleri: Covid-19 Salgını

Oturum Arası

13.00 - 15.00 **2. Oturum / Session** Prof.Dr.Gözde Emekli, Moderatör, Ege Üniversitesi

Dr. Cem Kınay, Fütürist Otelci, Anatolity Vakfı Kurucusu, TR (Keynote Speaker)
Covid Pandemi ve Turizm Sektörü

Prof. Dr. İbrahim Ortaş, Çukurova Üniversitesi , Ziraat Fakültesi, TR(Keynote Speaker)
İklim Değişimleri ve Covid-19 Ekseninde Gıda Güvencesi

Dr. Paola Puppo, Scuola superiore Livi di Prato, Toskana, Italy (Keynote Speaker)
"Observations about the origin of the Antonine plague and its consequences in the socio-economic system of the Roman Empire in the third century AD."

Prof. Dr. Azize Serap Tunçer, Dr. Öğr. Üyesi Sinan Bulut, Çankırı Karatekin Üniversitesi, TR
Pandemi Sürecinin Yerel Yönetim Sağlık ve Sosyal Politikalarına Etkilerinin Analizi

Dr. Farida Verdiyeva Azerbaycan Aqrar Universitesi, Azerbaycan
Covid Pandemi ve Zirai Faaliyetler

15.15 - 16.30 **Kapanış Oturumu / Closing Session**

Moderatör, Prof. Dr. Zerrin Toprak Karaman, Afet Yönetimi Anabilim Dalı, Kamu Yönetimi Bölümü
Prof. M. Doğan Kantarcı, İstanbul Üniversitesi, Orman Fakültesi (EM) (**Keynote Speaker**)
Uzman Hatice Suna Bina - İl Sosyal Etüt ve Proje Müdür Vekili / GAMER (**Keynote Speaker**)
Prof.Dr.Ömür Özmen- Afet Yönetimi ABD-İngilizce İşletme Bölümü
Prof. Dr. Özlem Çakır -Afet Yönetimi ABD-Çalışma Ekonomisi ve Endüstri İlişkileri Bölümü
Prof.Dr.Şükrü Karatepe / Yerel Yönetimler Politikalar Kurulu Başkanı (**Keynote Speaker**)

PROF. DR. NÜKHET HOTAR'IN AÇILIŞ KONUŞMASI
REKTÖR

Kıymetli mensuplarımız, saygıdeğer katılımcılar,

Dokuz Eylül Üniversitesi Rektörlüğü himayesinde Sosyal Bilimler Enstitümüz koordinasyonunda ve Disiplinlerarası Afet Yönetimi Anabilim Dalı Başkanlığımız tarafından düzenlenen COVID-19 Pandemisi'nde Disiplinlerarası Bütünleşik Afet Yönetimi Sempozyumu'na hoş geldiniz. İki gün boyunca devam edecek bilimsel etkinliğimize katılımlarıyla bizleri mutlu eden AFAD Başkan Yardımcısı Sayın Önder Bozkurt'a Türkiye Belediyeler Birliği Başkanı ve Gaziantep Büyükşehir Belediye Başkanı Sayın Fatma Şahin'e bilim insanlarımıza ve katılımcılarımıza şahsım ve kurumum adına teşekkür etmek istiyorum.

Değerli dinleyenler, küresel ölçekte olağanüstü bir dönemden geçiyoruz. Bir tarafta sağlığımızı tehdit eden koronavirüs salgını ile mücadele ediyor, diğer tarafta sosyal ve İktisadi hayatımızı dengede tutmaya çalışıyoruz. Aslında bu gerçeklik köklü ve zorunlu değişikliklerin yapılmasını gerektiriyor. Çünkü bulaş riski yüksek bu virüs kimliğe ve zenginliğe ya da ülkeye bakmaksızın hızla ilerliyor. Dünya Sağlık Örgütü'nün resmi verilerine göre 27 milyon insanın aramızdan ayrılmasına sebep olan bu salgın medeniyetin başına gelmiş en büyük afetlerden birisi olarak değerlendiriliyor. Saygıdeğer katılımcılar uluslararası toplumun uzun süre çaresiz kaldığı bu süreçte bütün kaynaklara ve imkanlara rağmen aşı çalışmalarının ancak 2020 sonu itibariyle tamamlanabildiğini gördük. Çünkü hiçbir kimse bu kadar büyük bir felakete hazırlıklı değildi.

Buna rağmen aşıyla ilgili araştırmalar tıp ve sağlık alanında çalışan bilim insanlarının ciddi gayretleriyle sonuca ulaştı. Koronavirüs ile mücadelede olağanüstü çaba gösteren sağlık çalışanları ise afetin daha da vahim hale dönüşmesini engelledi. Dolayısıyla hem ülkeler hem de akademi dünyası ciddi bir sınavdan geçti. Ülkemiz ise pandemi ile mücadelede ciddi bir refleks gösterdi. Muhterem Cumhurbaşkanımızın talimatları doğrultusunda sürecin başından itibaren bütün kamu kurum ve kuruluşları üniversitelerimiz sivil toplum kuruluşlarımız özel sektör temsilcilerimiz ve vatandaşlarımız el birliği yaptı. Kararlı şekilde hareket etti. Her ne kadar salgının seyrine bağlı dalgalanmalar fiziki önlemleri sosyal kısıtlamaları ve bazı düzenlemeleri beraberinde getirse de mücadelede devletimiz ve sağlık çalışanlarımız ellerinden gelen gayreti gösterdiler.

Geldiğimiz noktada hem yerli aşı geliştirme çalışmalarının varlığı hem de aşı uygulamalarının başlaması uzun vadeli planlarımızın umut vadettiğini ortaya koydu. Rektörlük olarak son günlerde ülkemizdeki vaka sayısındaki artışları dikkatle izliyoruz. Ancak şu da bir gerçek ki böyle bir hadiseyi hiçbirimiz tecrübe etmedik. İnsanları evlerinde işyerlerinde sosyal hayatlarında belli kurallarla sınırlamak ve sonrasında tekrar motive etmek kolay bir şey değil. Bu bağlamda afet bilincini geliştirmek ve üniversitelerimizde kamusal sorumluluklara uygun disiplinlerarası çalışmalar sürdürmek önem taşımaktadır. Buradan hareketle afet karşısında farkındalık oluşturacak doğru kanallar ile kamuoyunu bilgilendirecek, pandemiyi çok yönlü ele alacak bir sempozyum düzenlemeye karar verdik. Bu çıkış noktamızın yanı sıra etkinlik ile salgın konusunda merkezi yönetimin kararları kadar yerel yönetimler ile kent dinamiklerinin tutumlarının ve bilimsel araştırmaların da önemli olduğunu vurgulamayı hedefliyoruz.

Kıymetli konuklar, Üniversite Rektörlüğü olarak salgını başından beri takip ettik. İçindeki karantina uygulamalarının pandemi statüsünde tanımlanması ile çalışmalarımıza başladık. Hocalarımızla durum değerlendirmesi yaptık eylem planlarımızı şekillendirdik. Bölgesel hizmet sunan üniversite hastanemiz ve neredeyse bütün disiplinlerin yer aldığı bir sağlık yerleşkemizin olması bu konuda çalışmalarımızı hızlandırdı. Böylece ulusal sağlık politikalarımızla eş güdümlü hazırlıkları ve çalışmaları başlattık. Hastanemiz ve yerleşkelerimizde mensuplarımıza ve vatandaşlarımızın can güvenliğini sağlayacak tedbirler aldık. Dönüşümlü ve uzaktan çalışma uygulamasına geçtik. Üniversitemizdeki kamusal alanları özel olarak dezenfekte etmeye başladık. Hastanemizdeki COVID-19 hastaları hasta yakınları ve sağlık çalışanlarımız için ilave önlemler aldık. Hastanemizde kullanılan

çarşaf önlük koruyucu maske siperlik sosyal mesafeli banklar kolonya ve dezenfektan üretimini gerçekleştirdik. Maskematik dönemini başlattık. Maske ve eldivenlerin potansiyel bulaş riskini azaltmak için sterilizasyon cihazı ürettik. Otel Dokuz Eylül ve yurt gibi imkanlarımızı mensuplarımızın ve diğer kurumların ücretsiz kullanımına sunduk. Sağlık Bakanlığının onayladığı İmmün Plazma tedavisini dünya ile aynı anda uygulamaya başladık. COVID-19 Tanı Merkezi Laboratuvarını devreye aldık. Ege Bölgesi'nin ilk kapsamlı COVID-19 izlem merkezini açtık. Sağlık yerleşkemizdeki dört binden fazla mensubumuzun üç gün içinde aşılanmasını sağladık COVID-19'a ilişkin farklı alanlarda hazırladığımız bilgileri sanal ortama taşıdık Kendi kaynaklarımızla geliştirdiğimiz Online DEU uzaktan eğitim sistemini öğrencilerimizin ve hocalarımızın kullanımına sunduk.

Bu süreçte uzaktan eğitim kalitemizin daha da yükselmesi adına Cumhurbaşkanlığı İnsan Kaynakları Ofisinin desteğiyle eğiticinin eğitimi programını düzenledik. Üniversitemizin örnek olduğu bu çalışmada inisiyatif alan ilk kurum olduk. Bu mücadelede yer alan ve çalışmalarıyla bizlere destek veren bütün mensuplarımıza bir kez daha teşekkür ediyoruz.

Kıymetli dinleyenler, bu Sempozyumda elde edilecek disiplinlerarası bilgilerin ve paylaşımların kamu yönetiminin yol haritasının şekillenmesinde önemli katkılar sağlayacağını düşünüyoruz. Bu afet sadece sağlığımızı değil, toplum hayatımızı dinamiklerini de derinden etkiliyor. Dolayısıyla çok yönlü düşünmemiz ve koronavirüs ile her alanda fikir üretmemiz gerekiyor. Sempozyumun bu bağlamda önemli bir misyonu yerine getireceğine inanıyoruz.

Yabancı konuklarımızın da fikirlerini aktaracağı bu bilimsel etkinliğimizin başarılı geçmesini diliyor; katkılarınızdan dolayı sizlere teşekkür ediyorum. Sağlıklı günlerde tekrar buluşmak dileğiyle hepinizi saygı ve sevgiyle selamlıyorum.

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PLAGUE, PANDEMICS, AND DIVINE PUNISHMENT AMONG THE HITTITES

The kingdom of the Hittites was not stranger to calamities. The Hittites conceived pandemics that affected the population from time to time as a punishment inflicted by angry gods. The commitments of the Hittite elite were therefore manyfold: to investigate the reasons of such a punishment, to find a scapegoat or the ultimate cause for it, to appease angry gods, and eventually to resume the previous order. While procedures to gain specific goals are well known to us, thanks to the detailed descriptions of acts and formulae within the technical oracular literature, we know a bit less about the concrete nature of a pandemic, since the Hittites generally defined it as *ḫenkan* (primarily "death"). In this paper, I briefly present the most revealing occurrences of pandemic into the Hittite sources to disclose the real nature and the causes of the deadly diseases affecting the Hittite population within a precise historical frame.
Hittite Kingdom; ancient Anatolia; deadly diseases; mass dying; pandemics.

N95 I10 I18

1. Premise

The Hittites were an Indo-European population who moved into Anatolia, modern-day Turkey, at the beginning of the third millennium BC. In almost five centuries, between ca. 1670 and 1200 BC, the Hittites exercised their power from the Aegean coast in the west to the province of Sivas in the east, and from the Black Sea region in the north to the Syrian plain of Orontes River in the south. The core of the Hittite kingdom was located within the band of the modern Kızılırmak river, with its capital on the north-central Anatolian high plateau, some one hundred miles due east of the current Turkish capital, Ankara. The kingdom of the Hittites was one of the most powerful in the ancient Near East, together with Egypt, Assyria, Babylonia, and the Hurrians. The Hittite kingdom collapsed around 1200 BC. The bulk of information on the Hittite civilization mainly comes from internal sources, namely the epigraphic finds mostly unearthed in the Hittite capital Ḫattuša, corresponding to the modern village of Boğazkale. Starting from 1906, archaeological excavations have brought to light a collection of more than 30,000 fragments of clay tablets inscribed in cuneiform, a form of script directly borrowed from Mesopotamia.

Talking about epidemics and pandemics in the Hittite world proved to be a challenging task. We have no clear data on any pandemic among the Hittites, nor scientific tools to disclose it. We can only rely, therefore, on textual documentation. Even so, the picture is not clear enough, since we do not have any medical report, demographic census, or chronicle.

2. Some terminological explanations

The Hittites were no stranger to calamities. We can be sure that the Hittite population was affected from time to time by the widespread occurrence of deadly diseases. However, in the Hittite language, it seems that there is no specific word to express the concept of epidemic or pandemic. Death could be 'bad' (*idalu ḫenkan*) for the Hittites, whenever it comes prematurely; when it is caused, for instance, by a murder, pestilence, or else. The death (*aggatar*) that, otherwise, everyone meets in the propitious day (*aššu šiwat*/logographic UD.SIG$_5$) is a bearable one, and even desirable; such a glorious day that must be divinize (^{D}*Izzistanu*/^{D}UD.SIG$_5$). If the word *aggatar* means 'death', and has sometimes a positive connotation, the synonym *ḫenkan* bears a lot of semantic shades, but it may primarily define the 'death', as dramatically expressed in a prayer of the royal high priest Kantuzzili (ca. 1350 BCE):

Life is bound up with **death** and **death** is bound up with life. A human does not live forever. The days of his life are counted. Even if a human lived forever, and the evil sickness of man were to be present, would it not be a grievance for him?

ḫuišwatar=m(*u*)*=apa anda* ***ḫingani*** *ḫaminkan*

ḫingan*=a=m*(*u*)*=apa anda ḫuišwanni=ya ḫaminkan*

dandukišnaš=a DUMU-*aš uktūri natta ḫuišwanz*(*a*)

ḫuišwannaš UD.ḪI.A-*ŠU kappuwanteš*

mā(*n*)*=mman dandukišnaš=a* DUMU-*aš uktūri ḫuw*[*i*]*šwanz*(*a*) *ēšta*

man=ašta mān [*a*]*ntuwaḫḫaš idāluwa inan arta*

man=at=ši natta kattawatar

(Prayer of Kantuzzili, CTH 373, § 5': KUB 30.10, obv. 20'-23' Edition in Singer, 2002:31-33)

From this and other examples,[1] it seems plausible to assume that the word *ḫenkan-* (**ḫainkan-*) originally meant 'that what has been allotted to someone', being connected with the verbal root *ḫai*(*n*)*k-/ḫi*(*n*)*k-* 'to bestow' (act.) (Cf. Kloekhorst, 2008:339; *Pace* Puhvel,1991:300-301). The semantic is still not clear, and although we could ultimately translate it 'death' (*i.e.* 'what is allotted to humans'), there are several occurrences in the Hittite documentation that might point to a more refined translation.

The word *ḫenkan-* is often accompanied by the adjective 'bad' (*idalu*); therefore, is convenient postulating that the expression *idalu ḫenkan* would mean 'evil fate/misfortune'. A couple of examples may clarify it:

To him, along with his wife (and) children, they will allot an **evil fate**

nu=šmaš QADU DAM.MEŠ-*KUNU* DUMU.MEŠ-*KUNU* ***idālu ḫinkan*** *piyanzi*

(Protocols concerning the purity of the king, CTH 265.1, § 12'': KUB 13.3 ii 19, Edition in Miller, 2011:78-87)

Attaršiya, the ruler of Aḫḫiya, chased you, Madduwatta, out of your land. Then he harassed you and kept chasing you. And he tried to seek an **evil fate** for you, Madduwatta.

[*tukk*]*=a Madduwattan t*[*ue*]*l* KUR-*yaz* ^{M}*Attaršiyaš* LÚ ^{URU}*A*[*ḫḫiy*]*ā arḫa parḫta*

[*namm*]*a=aš=ta=kkan* EGIR-*an=pat kittat nu=tta parḫiškit nu tuēl ŠA* ^{M}*Ma*[*dduwa*]*tta* [***ida***]***lu ḫinkan*** *šanḫiškit*

(The Indictment of Madduwatta, CTH 147, § 1: KUB 14.1, obv. 1-2, Last edition in Beckman vd., 2011:69-100)

The question is: What kind of 'evil fate' (*idalu ḫenkan*) did conceive the Hittites? Surely a sudden (*i.e.* not planned, nor foreseeable) death:

Let it (the pig, as a ritual substitute) remove the **sudden death**, and vengeful, nefarious(?) (demons)

markištauwaš ḫinkan *šarkiwaliēš*

nakkiuēš <KI.MIN> = *mūdaiddu*

(Ritual of Tunnawiya, the old sorceress, CTH 409.IV.Tf02.A: KUB 9.4 iii 41-42, Edition in Beckman 1990: 34-55)

If […] a **mass sudden dying** will not make us flee down out of Ḫattuša, then let the performance oracle be favourable

^{URU}KÙ.BABBAR-*za=naš=kan* GAM ***pankuš markišdauwaš ÚŠ-aš*****$^{(!)}$** (= ***ḫenkan***) *UL watkunuzzi nu* KIN SIG_5-*ru*

(Oracle inquiry concerning the wintering of the king, CTH 563.1.A, § 22': KUB 5.3 i 47-48)

The last example brings us to the core of the present contribution. The passage of the oracle inquiry requested by the king to prepare himself to winter in Ḫattuša, possibly shows the Hittite periphrastic expression for *pandemic*: *pankuš markištuwaš ḫenkan*; literally 'a mass, sudden dying'.

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1 For the attestations see Puhvel, 1991:296f.

3. Plague as a pandemic event among the Hittites? Some hints to causes, consequences, and remedies

What kind of sudden, mass dying could have occurred among the Hittites? How could have it broke out? What about the epidemiology? And, most importantly, should we call it a pandemic or an epidemic?

On the background of the material at disposal, these are not easy questions to answer, but I will try to provide some hints. Some of the questions posed above could be partially answered by the preceding passage of the same oracle inquiry. The text reads as follows:

If, while His Majesty is up in Ḫattuša (*i.e.* in the Hittite capital), there will not be a **mass dying** among the auxiliary troops and the standing army —we are not concerned whether the "day of the death" arrives this year for 10 or 20 soldiers— if there will be not a **mass dying** up in Ḫattuša (and if the mass dying does not make us flee down out of Ḫattuša, then let the performance oracle be favourable)

man=ma=kan kuitman ^{D}UTU$^{Ši\ URU}$KÙ.BABBAR-*ši šer man=ma* ŠÀ ÉRIN.MEŠ *šarikuwa*

Ù ŠÀ ÉRIN.MEŠ UKU.UŠ ***panku* ÚŠ-*an*** (= ***ḫenkan***) *UL* DÙ-*ri*

GAM-*an arḫa* [GAR-*ru*]

IŠTU 10 LÚ.MEŠ 20 LÚ.MEŠ *man annaš* UD-*za kuedan*[*á*$^{(!)}$ MU^{TI}]

man=ma ^{URU}KÙ.BABBAR-*ši šer* ***panku* ÚŠ-*an*** (= ***ḫenkan***) *ŪL* DÙ-*ri*

(CTH 563.1.A, § 22': KUB 5.3 i 42-48 (with parallel text KUB 5.4 iii 43ff.), Edition in Beal, 1997:207-211)

The text tells us something about epidemiology: We are dealing here with a 'mass dying' (*panku ḫenkan*); therefore, the oracle inquiry is not concerned with any natural (*i.e.* not massive, nor sudden) death that is here then properly named 'the day of the mother' (*annaš siwat*), the day in which everyone can meet again who generated her/him. A natural death could, in fact, involve only a few soldiers (10 up to 20 units, according to the oracle).

The text tells us a bit more: A sudden death breaks out usually among the army.

For the Hittites, wars and military campaigns were not only a way to exercise power, to re-define the borders of geopolitical authority, to implement a political agenda. The topographic constraints of a region framed between the north-central orogenic plateau within the banks of the modern Kızılırmak river (Hittite *Maraššantiya*) and the Taurus range which marked the natural borders, compelled a demographic aggregation in a core area comparatively abundant in agricultural and pastoral resources. Together with the need of maximizing the exploitation of mineral resources, and a programme of resettlement, institution, and consolidation of new settlements, the Hittites seasonally underwent military campaigns to face the need for workforce to be employed in the fields. Annals, deeds, and military chronicles (Hittite *pešnatar*$^{Ḫ.A}$) report plundering, sieges, destructions, and above all, a long list of booties and captives. All these situations may have contributed to widespread deadly diseases. The real nature of calamities or deadly diseases is, however, difficult to disclose. Some texts may, nevertheless, tell us what the Hittites feared the most. In a Kizzuwatnean evocation ritual we read:

Then destroy the evil: Evil illness, fe[ver, **ev]il fate**, locusts'[2], slander, (and) harassment(?)!
May you (cedar gods) secretly wipe out the land of the city of Ḫattuša!
n=ašta idalu idalu[(*n* GIG-*an*)]

2 I prefer here (KUB 15.34 ii 47) to read □BURU$_5$.Ḫ.A□ ('locusts'), instead of □NAM□<.TAR>Ḫ.A ('fate') also because the evil fate should already be expressed by *idalu ḫenkan*.

tap[(*aš*)*šan* ***idalu***] ***ḫengan*** □BURU$_5$.ḪI.A□ *ḫuwa*[(*ppaš*)] *ut*[(*tar*)] *ḫuwa*[(*ppa*)]*na*[(*tar*)]

du[(*ddum*)*ili IŠ*(*T*)]*U* KUR ^{URU}*ḪATTI arḫa ḫar*[(*nikten*)]

(Evocation ritual to the cedar gods, CTH 483.I.A, § 18'': KUB 15.34 ii 46ff. restored after duplicate KBo 8.70: 6ff., Cf. Edition in Haas and Wilhelm, 1974:182ff.)

Other texts present a similar phraseology. In the Muršili II's hymn and prayer to the sun-goddess of Arinna, the king of the Hittites invokes the goddess to divert to the evil enemies the calamities that are affecting for twenty years the land of the city of Ḫattuša:

[Some] wish [to burn down your temples]; others wish to take away your rhyta, [cups], and objects of [silver and gold]; others wish to lay waste your fields, your gardens, and your groves; others wish to capture your plowmen, gardeners, and grinding-women.

To those enemy lands give severe fever, **death**, and famine, O sun-goddess of Arinna, my lady!

nu idālun tapaššan ***ḫenkan*** *gaštan* ^{D}UTU ^{URU}*Arinna* GAŠAN-*YA apēdaš* ANA KUR.KUR.ḪI.A ^{LÚ}KÚR *pāi*

(Muršili II's Hymn and Prayer to the Sun-goddess of Arinna, CTH 376.A, § 11: KUB 24.3 iii 1'–9', Edition in Singer, 2002:49-54)

The same invocation appears in another prayer of Muršili II to the god Telipinu:

O Telipinu, mighty god, keep alive the king, the queen, and the princes, and give them life forever, health, longevity, and vigor! [Give] them in their soul [gentleness(?)], radiance, and joy! Give them sons and daughters, grandchildren, and great-grandchildren! Give them contentment and obedience! Give them the growth of the grain, vines, cattle, sheep, and mankind! Give them a man's valiant, battle-ready, divine weapon! Put beneath their feet the enemy lands, and [may they destroy them]!

But from the land of the city of Ḫattuša [drive out] the evil fe[ver], **death**, famine, and locusts!

IŠTU KUR ^{URU}*Ḫatti=ma=kan idalun ta*[*pašan*] ***ḫenkan*** *kaštan māšann=a a*[*rḫa uiya*(?)]

(Muršili II's Hymn and Prayer to Telipinu, CTH 377, § 13'': KUB 24.1++ iii 2'-16', Edition in Singer, 2002:54-56)

Though the phraseology is a consolidated formula because it reflects the major calamities of antiquity (and modern days as well!), the substitution of the word *ḫenkan*, for instance in the prayer of the king Arnuwanda I (ca. 1380-1360 BCE) and the queen Ašmunikkal (CTH 375) with the ravages of the semi-nomadic population of the Pontic region, implies that the translation 'death' in the prayers of the king Muršili II could refer to a particular calamity.

In the so-called 'First Prayer to the Assembly of the Gods', dictated by the king Muršili II (ca. 1321-1295 BCE) is reported that a calamity (*ḫenkan*) is afflicting the land of the Hittites for twenty years. The same is stated at the beginning of the 'Second Prayer' as well:

O gods, [my] lords! A '**catastrophe**' broke out in the land of the city of Ḫattuša

and the land of the city of Ḫattuša has been severely damaged by the '**catastrophe**'
And since for twenty years now in Ḫattuša people have been dying…

DINGIR.MEŠ E[N.M]EŠ-*YA* [Š]À KUR ^{URU}*ḪATTI=kan* ***ÚŠ-an*** (= ***ḫenkan***) *kišat*

nu KUR ^{URU}*ḪATTI* ***ḫin<ga>naz*** *tamaštat*

[*n*]=*at mekki damm*[*ešḫaetta*]*t*

nu kāš MU-20^{KAM}

mekki=ya kuit KUR ^{URU}*ḪATTI akkiškett*[*ari*]

(Muršili's 'First' Prayer to the Assembly of Gods and Goddesses, CTH 378.1, § 2: KUB 14.14++, obv. 8, Edition in Singer, 2002:61ff.)

O storm-god of Ḫattuša, my lord! [O gods], my lords! Muršili, your servant, has sent me saying: "Go, speak to the storm-god of Ḫattuša, my lord, and to the gods, my lords: What is this that you have done? You have allowed a catastrophe into the land of the Hittites so that the land of the city of Ḫattuša has been severely oppressed by this **calamity**. People kept dying in the time of my father, in the time of my brother, and since I have become a priest of the gods, they keep on dying in my time. For twenty years now people have been dying in the land of the city of Ḫattuša.

(Muršili's 'Second Prayer' to the storm-god of Ḫattuša, CTH 378.2.C, § 1: KUB 14.10 + KUB 26.86 i 1-11, Edition in Singer, 2002:57ff.)

In the 'Second Prayer to the storm-god of Ḫattuša', Muršili II also indicates the exact moment: When his father attacked the Syrian territory of Amqa, which in those days was under the Egyptian control (ca. 1330 BCE), Šuppiluliuma I brought back to Ḫattuša prisoners of war, and suddenly, a pernicious calamity broke out:

When my father had given them (that is, the Egyptians) a son of his and when they had escorted him away, they killed him! My father burst out in rage, he went to Egypt (*i.e.* Syrian territories under Egyptian control), attacked it, and destroyed Egypt's troops and chariots. Even then, the storm-god of Ḫattuša, my lord, let my father prevail in the lawsuit: he defeated Egypt's troops and chariots and destroyed them.

When they were brought back home to the land of the city of Ḫattuša, the prisoners of war that they had captured, a **calamity** developed among the prisoners and they began to die.

When the prisoners of war were carried off to Ḫattuša, the prisoners of war brought the **calamity** into the land of the city of Ḫattuša.

nu LÚ.MEŠ *appa*[*ndan*] *kuin ēpper*

n=an maḫḫan INA KUR ^{URU}*ḪATTI* EGIR-*pa uwatēr*

nu=kan INA ŠÀ-*BI* $^{LÚ.MEŠ}$ŠU.DAB.BI.ḪI.A ***ḫinkan*** *kišat*

n=aš a[*k*]*kiškewan d*[*āiš*]

maḫḫan=ma $^{LÚ.MEŠ}$ŠU.DAB.BI.ḪI.A *INA* ŠÀ-*BI* KUR ^{URU}*ḪA*[*T*]*TI arnuēr*

nu=kan ***ḫingan*** *INA* ŠÀ-*BI* KUR ^{URU}*ḪATTI* $^{LÚ.MEŠ}$*ṢABTUTUM utēr*

(Muršili's 'Second Prayer to the storm-god of Ḫattuša', CTH 378.2, §§ 5-6, Edition in Singer, 2002:59ff.)

Muršili II identifies the deportation of the prisoners of war as the ultimate cause of the calamity. However, as the calamity was sent by angry gods, the Hittite king in his desperate appeal to the storm-god seeks to identify the causes of the gods' anger. Sifting through the tablets of the royal library, he found three main facts that may have caused the gods to be displeased: The Hittite king has been neglecting for a long time the due rites to the river Mala (Euphrates); his father, the king Šuppiluliuma I, murdered the legitimate heir to the throne, Tudḫaliya "the younger", to install himself in kingship; last but not least, his father broke a previous treaty between Hittites and Egyptians, as he attacked the land of Amqa that was under the Egyptian control.

We are not here to investigate which of the three terrible facts caused the gods' anger. For the topic of the present contribution is more important to know what this 'calamity' (*ḫenkan*) was about. It could have been a disease, brought into the land of the Hittites by prisoners, and difficult to eradicate, as it affected the Hittite population for twenty years. This 'death', 'calamity', or 'catastrophe', whatever we want to call it, must have been the same with which the Hittites were obsessed every time they were campaigning, so that they needed to perform specific rituals. The Hittites always perceived this calamity as a chaotic event coming from outside to disrupt the internal order and balance, provided by the gods, and regulated by the great king:

So (speaks) Uḫḫamuwa, the man from Arzawa:

"When someone is dying in the province,

and if any hostile deity made it,

then I act as follows:"

UMMA ^{M}*Uḫḫamuwa* LÚ ^{URU}*Arzawa*

mān=kan ŠÀ KUR-*TI akkiškittari*

n=at mān kururaš kuiški DINGIR-*LUM iyan ḫarzi*

nu kiššan iyami

(Ritual of Uḫḫamuwa from Arzawa against a 'calamity', CTH 410, § 1: HT 1 ii 17-19, Online edition in Görke, hethiter.net/: CTH 410 (TX 09.12.2013, TRde 20.07.2012))

["When the king] attacks an enemy [lan]d

and [re]turns [from the enemy border,]

[if] either some male deity [or female deity is angry]

[and (as a result)] a **catastrophe** occur[s among(?)] the people"

[*mān* LUGAL-*uš* KU]R ^{LÚ}KÚR GUL-*aḫzi*

n=[*aš=kan IŠTU* ZAG KUR ^{LÚ}KÚR *arḫa iy*]*at*[*t*]*ari*

[… *mān ŠA* KUR ^{LÚ}KÚR *n*]*aššu* DINGIR-*LUM kuiški* [LÚ *našma* DINGIR.MUNUS …]

[*nu* ŠÀ(?)] DUMU.U_{19}.LÚ.ULÙ.LU **ÚŠ-*an*** (= ***ḫenkan***) *kišar*[*i*]

(Ritual of Puliša against a 'catastrophe', CTH 407 § 1: KBo 15.1 i 5, Online edition in Collins, hethiter.net/: CTH 407 (Expl. A, 10.11.2014))

So (speaks) Tapalazu]nauli, the man from Arzawa

["When a '**calamit]y**' [breaks out] in provincial district[3] or among the ar[my]

[Then] they per[form this ritual?]:"

[*UMMA* ^{M}*Tapalazu*]*nauli* LÚ ^{URU}*Arzaw*[*a …*]

[**ÚŠ-*a***]***n*** (= ***ḫenkan***) ŠÀ KUR-*TI našma* ŠÀ KA[RAŠ *kišari*]

[*nu kī* SISKUR *iya*]*nzi*

(Ritual of Tapalazunauli? from Arzawa against a 'calamity', CTH 424.1, § 1: KUB 34.74 i 1-2, Online edition in Fuscagni, hethiter.net/: CTH 424.1 (INTR 2016-08-09))

So, we know that this 'death', this 'calamity' could be a severe disease spread out within the

3 The translation offered here is based on CTH 277.4.A, the tablet-catalogue KUB 30.51 iv 14'-16' where is specifically mentioned the term *ḪALṢI* "district". Cf. Dardano, 2006:132f.

army, coming from the outside, affecting the entire population, lasting for many years; a disease that worried the Hittites very much. However, how it specifically was transmitted we cannot say. We can postulate that it affected not only humans but also animals close to them and that it was probably transmitted from animals to humans. A Kizzuwatnean ritual reports, for instance, that the *ḫenkan* could also touch the animals that were with the army:

So (speaks) Maddunani, the augur from Arzawa:

"When breaks out a '**calamity**' within the armies,

so that humans, horses, and cattle die terribly,

They perform a *muranza*-ritual"

UMMA ^{M}*Maddunani* ^{LÚ}IGI.DÙ LÚ ^{URU}*Arzauwa*

mān=kan ŠÀ KARAŠ.ḪI.A **ÚŠ-*an*** (=***ḫenkan***) *kišari*

UN.MEŠ-*tar* ANŠE.KUR.RA.ḪI.A GU_4.ḪI.A KALAG-*gaza akkiškittari*

nu SÍSKUR *mūranza iyanzi*

(Ritual of Maddunani from Arzawa against a calamity within the army, CTH 425.1, § 1: KUB 7.54 (with duplicate Bo 5510+KUB 57.114) i 1-4, Online edition in Fuscagni, hethiter.net/: CTH 425.1 (TX 22.07.2016, TRde 22.07.2016))

On the same clay tablet (*Sammeltafel*) is recorded another ritual against a 'calamity' within the army. The recipe of the ritual consists of a mixture of grain and straw for the horses (CTH 425.2, § 2):

So (speaks) Dandanku, the augur: "When someone is dying within the army, then this ritual is performed…"

The grooms of the god who belong to Yarri

Those should give the blended formula to the horses.

$^{LÚ.MEŠ}$ANŠE.KUR.RA-*watta kuēš ŠA* DINGIR-*LIM*

^{D}*Yarri nu=wa ke¯immiul*

ANA ANŠE.KUR.RA *piyandu*

(Ritual of Dandanku, the augur from Arzawa, against a 'calamity' within the army, CTH 425.2, §§ 1, 3: KUB 7.54 ii 7-9; 15-17, Edition in Bawanypeck, 2005:138-139)

Even if the logic of the ritual performance is not completely clear, we have indications that if a 'calamity' (*ḫenkan*) spreads out within the army, the horses might be the vehicle. It is also said that the horses must be healed by the grooms of the god Yarri, which is the equivalent of the god Apollo in the Greek culture and religion. As we know, the god Apollo is often depicted as the god of pestilence. The god Yarri acts in the same way as does the Apollo of the Homeric epos, throwing his deadly and poisoned arrows towards the enemy land:

Then they string the bow and put the arrow in there: Thus, he throws the arrows and says: "O god, shoot with this arrow the enemy land! But whenever you come in the land of the city of Ḫattuša, may your quiver be closed, may your bow be released!"

(Ritual against a 'calamity' within the army, CTH 425.1.A: KUB 7.54 iii 19'-26')

The bloody god Yarri who destroys people is sometimes depicted while is accompanied by starved dogs looking for human flesh.

In another ritual is recorded that, when it is ascertained that the calamity is coming from an enemy land, the ritual practitioner prepares all the remedies to cure the horses:

“So, you hit the horses! Let them eat this fodder (*i.e.* the recipe)! Let them be sated! May your chariot be smeared with fat!”

ANŠE.KUR.RA.MEŠ-*wa turiyan ḫarti*

nu=wa kī ŠÀ.GAL.ḪI.A *ezzandu*

nu=war=at ispiyanteš ašandu

^{GIŠ}GIGIR=*ya=wa=ta=kkan IŠTU* ^{UZU}Ì.UDU

(Ritual of Zarpiya from Kizzuwatna against a ‘calamity’, CTH 757.A: KUB 9.31 ii 62 - iii 13 (with duplicates KUB 61.17 ii 18ff. and HT 1 ii 34-47))

Here we see a clearer connection between the pestilence sent by Yarri to the army and the supposed vehicle of the disease. Apart from this indirect information, we do not have other elements to prove that the ‘calamity’, the ‘mass sudden dying’ that may have affected the Hittite army from time to time would have been a pestilence. We may though speculate that, if this were the case, the plague could have been transmitted by infected fleas, carrying the disease, and passing it from horses (or other animals) to humans.

So, how did the Hittites react to a pandemic like the plague could have been? They basically acted in two ways: They prepared all the rituals that I have mentioned, together with offerings to appease the angry gods; and, for those among the population could do it, they proceeded with isolation.

Apart from detailed oracles and rituals that constitute the largest portion of the Hittite tablets collection, we do have little information about the practical remedies against the plague.

In a fragmentary passage of the extensive annals of Muršili II, the king reports that on the fifteenth year of his reign the plague (*ḫenkan*) was among the population of Ḫattuša, so that he was forced to move elsewhere, supposedly together with the courtiers:

And for the gods [I held] the festival of […] and I performed the festival of the autumn. [And on that time, there was a **plague** in the land of the city of Ḫattuša] and many people died, and [(I retreated)] before the **plag[ue** and] I, the [ki]ng, [went] to the country of the town of Ḫarziwana…

nu=kan ANA DINGIR.MEŠ […]

nu ANA DINGIR.MEŠ EZEN x[…*iyanun*]

zenantaš aššanunun [*nu INA* ŠÀ KUR ^{URU}*ḪATTI* **ÚŠ-*an*** (= ***ḫenkan***)=*kan ēšta*]

nu akkeškittat nu **ÚŠ-*n*[*i*** (=***ḫenkan***) *peran arḫ(a tarnaḫḫun) nu=za*]

[LU]GAL-*u*[*š*] *INA* KUR ^{URU}*Ḫarziwana* [*pāun*]

(Extensive Annals of Muršili II, CTH 61.II: KBo 16.15 iii 5-9 + KBo 14.20 ii 19’-21’, Edition in Houwink ten Cate, 1966; Cf. del Monte, 1993:113-114)

It is difficult to say whether the plague referred to in this passage could have been the same plague reported in the hymns and prayers, namely the one that was brought back to Ḫattuša by the Egyptian prisoners. Anyway, the Hittite king Muršili II tells us that he admittedly moved to a safer place. The land of Ḫarziuna can be localized in the mountainous region between the Tuz Gölü and the Sakarya River (Hittite *Šaḫiriya*), where milder climate conditions, mitigated by the presence of the orogenic lakes Akşehir and Eber, could have been beneficial.[4]

Another, supposed mountainous shelter during a pandemic is mentioned in the deeds of Šuppiluliuma I, as they were reported by the scribes of his son, Muršili II:

4 For a localization of Ḫarziuna, see now de Martino, 2017:259.

So, he (*i.e.* Šuppiluliuma I) went and set out to build (*i.e.* fortify) the town of Almina. And in the rear, in the army, a **plague** broke out. Then my father took (a shelter) on mount Kuntiya

nu=za pait ^{URU}*Alminan wettumanzi IṢBAT* EGIR-*an=kan*

INA ŠÀ KARAŠ ***ḫinkan*** *kišat nu=kan ABU-YA*

ŠÀ $^{ḪUR.SAG}$*Kuntiyan a<nda e>pta*

(Deeds of Šuppiluliuma I, CTH 40.IV.1.A, § 2: KBo 5.6 i 9-11, Edition in del Monte, 2008:83ff.)

The last evidence of isolation as a remedy against the plague comes from a passage of a royal letter in which instructions are given to move a royal princess named Apadda to a safer place:

In the town of Ašušuḫa (people) are dying. Apadda is now close to those places (*lit.* settlements). As already said, as long people are dying there, she must be transferred from the palace. They shall move the daughter in another place!

nu=kan INA ^{URU}*Ašušuḫa*

akkiškattari

DUMU.MUNUS=*ma* ^{F}*Apadda kuwapi ḫarzi*

nu apedaš

ANA URU.DIDLI.ḪI.A

wanninkuw[*an*]

[*ap*]*eniššan*

[*kuı̯*]*tman pedi* [ ]

[*akk*]*iškitta*[*rı̯*]

[*nu=ka*]*n IŠTU* É.[GAL]

[*ped*]*anzi*

[*nu=kan*] DUMU.MUNUS

d[*a*]*mēdani*

kuedanikki

pedi pedanzi

(Royal letter to the courtiers of princess Apadda, CTH 209: KBo 18.10, obv. 1'-17', Edition in Hagenbuchner, 1989:205f.)

I wish to conclude with the closing words of Professor Theo van den Hout from the University of Chicago, as he wrote down in a contribution on the Hittite Plague Prayers recently published in the News & Notes Members' Magazine of the Oriental Institute (van den Hout, 2020): "What is interesting to see is how the Hittite approach didn't differ that much from ours. They knew exactly where this plague came from and who brought it into Hatti-Land. We can be sure that once they had identified infected people, they isolated them and practiced forms of social distancing. One only needs to think of leper colonies in history. But this knowledge and the practical measures taken didn't exclude the ritual and religious approach. I'm certain that now too, all faiths in the world turn to their gods, begging them to make the pandemic stop, using their own prayers and rituals. What we have in addition that the Hittites didn't have is modern science. Hopefully, therefore, we don't have to sit it out for twenty years."

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