**A Civilization Engineering Analysis of Kievan Rus'**

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The history of Kievan Rus' is a unique history. Its early history helps frame the appearance of various agrarian and pastoral nomadic peoples, such as the agrarian Trypillians (3500 – 2700 BCE), who utilized boring drills and wooden plows, as well the horse-riding Cimmerians (1500 – 1000 BCE). The land would later see the rise of Scythian and Hellenistic influence, Roman overlordship, Roman decline due to the Goths, and Roman destruction by the Huns in 270 CE.[1] With an eventful history already behind it, the emergence and collapse of Kievan Rus' between the 9th and 13th centuries CE would spark controversies surrounding the national identities of the area's Slavic peoples, thereby leaving lasting consequences that are present to this day. Keeping in mind the controversial beginnings and endings of Kievan Rus', this paper will address the initial conditions for the establishment of Kievan Rus', the various technologies (legal and ecclesiastic) that were employed to ensure some stability over its natural and social environment, as well as the technologies employed against Kievan Rus' by the Mongolians, who brought an end to Kievan Rus' and fractured the identity of the Eastern Slavs.

A good starting point in the examination of the initial conditions for Kievan Rus' would be the emergence of the agrarian Slavs. Distinct from other nomads in the surrounding areas, the Slavs slowly but peacefully migrated from the Carpathians, the Vistula Valley, and the Prypiat marshlands in all directions in the 6th and 7th centuries CE, fragmenting into different subgroups in the process. Those who migrated eastward towards and across the Dnieper would later be designated East Slavs, who spoke a language that would form the basis for the Ukrainian, Russian, and Belorussian languages. As these tribes expanded and fragmented, trade began to take place between the Eastern

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[1] Orest Subtelny, *Ukraine: A History* (Toronto: University of Toronto Press, 2009), 6

Slavs and the Arabs, exchanging eastern jewelry, textiles, and metals for Slavic wax, honey, and slaves. The establishment of these exchanges led to the Eastern Slavs becoming less isolated and would eventually bring them into contact with the Norman Varangians (Vikings). Much controversy surrounds the involvement of the Varangians in establishing Kievan Rus' as opposed to that of the Eastern Slavs. However, some dismiss the importance of Varangian involvement. One more contemporary historian, Omeljan Pritsak, believes that, in summary, "the original Rus' were a multiethnic and multilingual trading company that tried to control the trade routes between the Baltic and the Mediterranean and in the process established the political entity called Kievan Rus'".[2] In other words, a multiethnic group of people, including the Varangians who capitalized on the Kievan Dnieper trade routes, helped establish a political conglomerate based on commerce and tribute-taking, thereby effectively establishing Kievan Rus'.

By the 10th century CE, Kievan Rus' would be ruled by princes who hoped to expand their territory and impose tributes on the inhabitants. While many had success in these ventures, they also experienced difficulties both in establishing their authorities over their subjects and in succession quarrels. In 980 CE, Volodomyr the Great would ascend the throne facing these problems. Responding to these issues, Volodomyr would turn to Byzantine Christianity as the technology that would help provide monarchical stability as well as spiritual, social, and political modernization. This conversion to Byzantine Christianity in 988 CE came about as a result of Volodomyr's difficulties in marrying Anna, the sister of the emperors of Byzantium.[3] After converting to Byzantine Christianity and

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[2] Orest Subtelny, *Ukraine: A History* (Toronto: University of Toronto Press, 2009), 25
[3] Orest Subtelny, *Ukraine: A History* (Toronto: University of Toronto Press, 2009), 33

applying further pressure on the Byzantines, Volodomyr won the hand of Anna, thereby

receiving an enhanced political structure from Constantinople, connections to other

Christian European monarchs, and increased ideological support for the monarch.[4] With

this ideological support and a populace now converted to Byzantine Christianity,

Volodomyr managed to secure substantial monarchical security at home and abroad.

However, despite these measures to secure the holdings of the Kievan Rus' monarch, some

organizational technologies were lacking. Additionally, Volodomyr failed to address the

issue of succession conflicts that first arose following the death of his predecessor,

Sviatoslav.[5] The following ruler would employ new technologies and policies to address

these issues.

Iaroslav the Wise would be the next ruler to ascend the Kievan throne in 1036 CE,

twenty-one years after the death of Volodomyr. This delay in ascension was the result of

the succession quarrels among the direct descendants of Volodomyr. Despite this delay,

Iaroslav proved to be one of the best rulers in the history of Kievan Rus' in no small part

due to his continued success in expanding the territory of Kievan Rus' as Volodomyr had

done before. However, Iaroslav is especially notable for his contributions to the Byzantine

church and in law. Beginning with the church, he established numerous monasteries and

over 400 churches in Kiev. The most notable of these churches is the Saint Sophia,

modelled after Constantinople's Hagia Sophia.[6] Many point out the political functions of the

Saint Sophia by examining the symbols embedded in its architecture. Images in the church,

such as that of the Kiev Hippodrome, which represents the chariot races of Constantinople,

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[4] Orest Subtelny, *Ukraine: A History* (Toronto: University of Toronto Press, 2009), 34
[5] Orest Subtelny, *Ukraine: A History* (Toronto: University of Toronto Press, 2009), 34
[6] Orest Subtelny, *Ukraine: A History* (Toronto: University of Toronto Press, 2009), 35

present, in the words of Elena Boeck, an emphasis of "a topography of imperial control".[7] In

addition to the images portraying such power, the very existence of such images in the

Saint Sophia imply Iaroslav's knowledge of the meaning of these images. As Boeck says,

"The acquisition of 'specialized knowledge' diminished the intellectual distance between

Iaroslav and his Byzantine rivals." Boeck asserts this position with a quote from Mary

Helms. Helms says, "In all modes of exceptional intellectual endeavor where knowledge

and, therefore, power is seen to derive at least in part from familiarity with 'outside'

phenomena . . . those who wish to acquire or manifest such power must, *ipso facto*, become

experts on things and places 'outside'".[8] As evidenced by these statements, the construction

of the Saint Sophia not only serves to enrich Kievan Rus' on a cultural level, but also serves

to establish Iaroslav's authority to his Byzantine Christian neighbors. Boeck goes further,

saying that the "acquisition and display of distant knowledge also elevated Iaroslav above

his Rus' rivals and contemporaries".[9] Thus, one sees Iaroslav using the church and its

esoteric symbols to attack internal destabilizing factors that might arise from problems like

succession quarrels. Such an emphasis on establishing the authority of this Kievan monarch

also helps explain the lack of recognition of the architects who would have assisted Iaroslav

in the construction of the Saint Sophia and the other Kievan churches.

      Aside from Iaroslav's efforts in strengthening the presence of the church, his true

claim to fame comes from his impact in Kievan Rus' law. Until Iaroslav's reign, the

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[7] Elena Boeck, "Simulating the Hippodrome: The Performance of Power in Kiev's St. Sophia," *The Art Bulletin* 91, no. 3 (September 2009): 283-301, URL: https://www.jstor.org/stable/40645508.

[8] Elena Boeck, "Simulating the Hippodrome: The Performance of Power in Kiev's St. Sophia," *The Art Bulletin* 91, no. 3 (September 2009): 283-301, URL: https://www.jstor.org/stable/40645508.

[9] Elena Boeck, "Simulating the Hippodrome: The Performance of Power in Kiev's St. Sophia," *The Art Bulletin* 91, no. 3 (September 2009): 283-301, URL: https://www.jstor.org/stable/40645508.

customary law that ruled the land existed vaguely in the oral tradition through legends and

rules of conduct. During Iaroslav's reign, these early customary laws were ordered and

systematized in the *Pravda Ruskaia* (*Rus' Law*). Notable customary laws included in the

*Pravda Ruskaia* include rules on the tribal tradition of blood vengeance.[10] Such inclusions

demonstrate a unique acknowledgement of the past tribal beginnings of Kievan Rus' along

with the desire for political modernization in the inclusions' codification. The *Pravda*

*Ruskaia* also outlined laws related to land surveying for taxation as well as property

ownership, using the *sazhen* as a unit of land measurement to better quantify tax and

property ownership distribution. Such laws help reflect the shift from measuring land

possession based on the boundaries of developed land as a result of population growth and

increasingly limited land resources.[11] Thus, the *Pravda Ruskaia*, in addition to being a

political stabilizing technology by virtue of its law codification, utilizes other pragmatic

technologies that help specifically outline the hierarchies in Kievan Rus'.

Despite Iaroslav's measures to maintain monarchical stability in Kievan Rus',

infighting over succession and fragmentation among the Rus' principalities saw Kievan Rus'

in a weakened state, leaving that principality in poor shape to face the eastern Mongols.

Batu Khan, the grandson of Genghis Khan and general of the Mongol horde, would be

responsible for leading an army against the walls of Kiev. In order to employ their

characteristic fear tactics and breach the fortified city, Batu's army would utilize siege

weapons, including trebuchets, catapults, and battering rams, all of which were wheeled in

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[10] Shevchenko Scientific Society, *Ukraine: A Concise Encyclopaedia* 2, ed. Volodomyr Kubijovyč (Toronto: University of Toronto Press, 1971), 11

[11] T V Ilyushina, "The origin of the state system of land surveying in the times of Kievan and Moscow Rus in the X-XV century," *IOP Conference Series: Earth and Environmental Science* 579 (2020): 2, URL: https://iopscience.iop.org/article/10.1088/1755-1315/579/1/012162/pdf.

on "big carts"[12]. While the siege engines themselves were technically impressive, one cannot overemphasize the importance of these big carts. These massive vehicles, which spanned twenty feet and were transported by twenty-two oxen each, transported both siege engines and *yurts*, the homes of the nomads.[13] Such vehicles were a triple threat. Not only could they assist the Mongolians in mobilizing their forces and transport the decisive siege engines, but they also served to intimidate the Kievan forces. Reports of the siege state that the citizens "could not hear each other due to the permanent grating of cartwheels, the roaring of many camels and the neighing of horses"[14]. As a result of these intimidation tactics and superior siege technology, the Mongolians would capture Kiev in 1240, forcing a split of the Rusyns with western Galicia and Volhynia preserving much of the Kievan cultural heritage while eastern Muscovy would ingratiate themselves closely with the Mongolian overlords, thereby sharpening the cultural divide.[15]

To conclude, while the civilization of Kievan Rus' lacked an outstanding presence in technology and recognition of engineers, the political and social technologies that were established demonstrate a profound evolution from a collection of tribal societies to a sophisticated political conglomerate. The establishment of a contemporary religious bureaucracy and law codes helped in leading Kievan Rus' out of obscurity and into the court of other emerging European powers. Had there been better political technologies in place, the Rus' principalities would have contended better against the unified Mongolian

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[12] Alexander Maiorov, "The Mongolian Capture of Kiev: The Two Dates," *The Slavonic and East European Review* 94, no. 4 (October 2016): 702-714, URL: https://www.jstor.org/stable/10.5699/slaveasteurorev2.94.4.0702.
[13] Alexander Maiorov, "The Mongolian Capture of Kiev: The Two Dates," *The Slavonic and East European Review* 94, no. 4 (October 2016): 702-714, URL: https://www.jstor.org/stable/10.5699/slaveasteurorev2.94.4.0702.
[14] Alexander Maiorov, "The Mongolian Capture of Kiev: The Two Dates," *The Slavonic and East European Review* 94, no. 4 (October 2016): 702-714, URL: https://www.jstor.org/stable/10.5699/slaveasteurorev2.94.4.0702.
[15] Orest Subtelny, *Ukraine: A History* (Toronto: University of Toronto Press, 2009), 77

horde of the east. Unfortunately, the Mongolians with their carts, siege weapons, and terror

tactics were simply better equipped to crush any resistance that the Rus' principalities

could muster.

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