

Excellence in Upper-Level Writing

The Gayle Morris Sweetland Center for Writing

Excellence
in
Upper-Level Writing
2013/2014

**The Gayle Morris
Sweetland Center for Writing**

Edited by
Shelley Manis and Dana Nichols

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Excellence in Upper-Level Writing 2013/2014

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Amanda Hendrix-Komoto

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Winners List

Granader Family Prize for Excellence in Upper-Level Writing (Sciences)

Alexandra R. Berns

“Increasing Crop Growth: The Effect of Compost on the Growth of Ryegrass, *Lolium perenne*”

nominated Lynn Carpenter, EEB372, General Ecology Lab

Nicholas Kern

“A New Class of Supergiant Stars?”

nominated by Sally Oey, Astro 429, Senior Seminar in Astronomy

Granader Family Prize for Excellence in Upper-Level Writing (Social Sciences)

Maximillian Huppertz

“A Fair System of Education”

nominated by Frank Thompson, Econ/Phil 408, Philosophy and Economics

Sarah N. Cunningham

“Record Keeping in Ancient Civilizations”

nominated by Carla Sinopoli, Anthrarc 386, Archaeology of Early Civilizations

Granader Family Prize for Excellence in Upper-Level Writing (Humanities)

Rebecca Bonner

“Women, Family Policy, and Consumption in Cold War Germany”

nominated by Rita Chin, History 496, Germany in the Cold War Era

James Nadel

“Camel Songs: A Comparison of the Tuareg and the Bedouin”

nominated by Ellen Poteet, History 496, Nomads: the Nomadic Factor in History

Nominees List

Student Name

Aleah Douglas
Alexandra Berns
Alyssa Slayton
Andrew Gillespie
Boris Bosnjak
Cameron Taylor
Christina Maxwell
Christopher Chermiside-Scabbo
Claire Van Winkle
David Mays
J. Amelie Chenet-Smith
Jacob Steiber
James (Jamie) Nadel
Jeannette Hinkle
Jenna Birch
John Foster
Juston Jaco
Karina Lopez
Maximillian Huppertz
Molly Welch
Mostafa Bendali-Amor
Nicholas Kern
Nikki Page
Omar Mahmood
Paul Feingold
Rebecca Bonner
Sam Buchman
Sarah Cunningham
Sarah Squillante
Trevor Grayeb

Instructor Name

Jeremiah Chamberlin
Lynn Carpenter
Aric Knuth
Jillian Rothman
Huzefa Khalil
Liliana Naydan
David Burkam
Eileen Pollack
V.V. Ganeshanathan
George Hoffmann
Varuni Bhatia
Sara Talpos
Ellen Poteet
V.V. Ganeshanathan
Jeremiah Chamberlin
David Halperin
Aric Knuth
David Halperin
Frank Thompson
Dana Nichols
Lynn Carpenter
Sally Oey
Eileen Pollack
Jennifer Metsker
Huzefa Khalil
Rita Chin
Joel Clark and Margaret Howard
Carla Sinopoli
Nick Harp
Alon Yakter

Introduction

Ask any professional, any business person, or any employer about the most important qualifications for college-educated workers, and the answer will be nearly universal: the ability to write well. The Upper Level Writing Requirement (ULWR) was established to enable undergraduates in the College of Literature Science and the Arts to develop their capacities as writers. Originally designed, in 1978, to help students “understand and communicate effectively the central concepts, approaches, and materials of their discipline,” the ULWR supports a slightly different goal in today’s more interdisciplinary context. A significant percentage of students now have more than one major, and/or choose to fulfill the ULWR in a field outside their major. Likewise, some faculty members are more concerned with preparing students to write for multiple audiences rather than for a discipline-based audience. However, whether students fulfill the ULWR within or outside their majors, they are held to the same standards of effective writing.

This collection demonstrates the continuing value of the ULWR. Courses like the ones in which students produced these essays create contexts where students meet the expectations of the ULWR and can push beyond them to an even more impressive level of accomplishment. While the specifics of what counts as evidence and how one makes a convincing argument vary across the essays included here, each one embodies qualities that mark effective writing. The authors deal with a wide variety of topics, but in every case they combine deep understanding of a specific area with excellent prose. They take risks and adhere to conventions; they synthesize complex ideas and provide rich detail; they exert intellectual independence and respect disciplinary conventions. You will see these qualities as you read about family policy in cold war Germany, an economic perspective on education, a comparison of the camel songs of the Tuareg and the Bedouin, the effect of compost on ryegrass, record keeping in ancient civilizations, and new supergiant stars.

We have been honoring students for outstanding writing in ULWR courses since 2010, but this year, thanks to a generous gift from the Granader Family, the prizes are more substantial. We are grateful to the Granaders for choosing to recognize student writing in this way. This collection is another form of recognition for the award-winning students. By publishing this student writing both online and in hard copy we make it available as a model and as a source of inspiration for others.

Talented and committed as they are, these students represented here did not become award-winners entirely on their own. Each of them benefitted from well-designed assignments, careful reading, and suggestions for revision from the instructors who nominated them. The instructors' introductions for each selection provide a window into student learning as well as into the specific dimensions of each student's achievements.

The judges who selected the award-winning essays from all of those nominated did not have an easy job because they had to choose from among so many fine pieces of writing. As one of the judges who read and discussed all the nominees, I can affirm that it was both inspiring and humbling to see the excellent writing produced by our students. Although the work of judging was its own reward, thanks are due to Carol Bardenstein, Emily Goedde, Rachel Goldman, Amanda Hendrix-Komoto, Dan Jaqua, Sara Konrath, Elizabeth Mann, Heidi Phillips, Simone Sessolo, Rebecca Tutino, Daniel Weissman, Jessica Wiederspan, who read and discussed all the ULWR essays as part of their work in the Sweetland Seminar.

I am also grateful to Shelley Manis and Dana Nichols whose careful editing, combined with Aaron Valdez's design features, shows the student writing to its best advantage.

Anne Ruggles Gere, Director
Sweetland Center for Writing

Winning Essays

Granader Prize for Excellence in Upper-Level Writing (sciences)

Increasing Crop Growth: The Effect of Compost on the Growth of Ryegrass, *Lolium perenne*

Alexandra R. Berns

From EEB372, General Ecology Lab (nominated Lynn Carpenter)

This paper was easily the best of those that were submitted for this assignment. Alexandra's paper is organized, it flows nicely from one topic to the next, and it is packed with good information. Alexandra also managed to master the scientific style and convince the audience that she is a scientist. In my opinion, this paper serves as a great example to other undergraduates who are learning to write from a scientific perspective.

Students are asked to create a final paper that focuses on an Independent Research Experiment that they conducted over the entire term. These papers are a culmination of all of their efforts over the term, and this creation can be daunting. Alexandra tackled this with ease, and her final paper serves as a fantastic example of what can be achieved through hard work and determination.

Lynn Carpenter

Increasing Crop Growth: The Effect of Compost on the Growth of Ryegrass, *Lolium perenne*

Abstract:

The current dependence of the American agricultural system on industrially produced chemical fertilizers causes deleterious effects on multiple ecosystems and may even be harmful to human health. In the future, compost may replace fertilizers as a means for improving plant growth. In this experiment I examined the effect of soil treated with decomposed organic matter on ryegrass (*Lolium perenne*). The purpose was to determine if the compost-like mixture had a positive impact on ryegrass growth. The results could be used as a preliminary step in determining if large scale composting is a worthy investment to use as natural fertilizer for common American grasses. Thirty pots with five ryegrass seeds each were grown in my basement. The thirty pots were split up into three groups of ten, and each group received a different experimental treatment. One group was the control, one received one cup of the compost mixture per pot, and the final group received two cups of the compost mixture per pot. Increased levels of compost stimulated the growth of ryegrass. The group that received two cups of compost had a significantly greater mean plant height than the control. The plants that were treated with no compost had the lowest mean plant height. Overall, increased levels of the compost mixture had a positive impact on ryegrass height, so continued research and understanding the effect of compost on different common plant species is necessary to further investigate using compost as a natural fertilizer.

Introduction:

Compost, or nutrient rich decomposed organic matter, is known to promote plant growth and enhance the microbial diversity of soil. Compost often consists of fruits and vegetable scraps, eggshells, coffee grinds and filters, and even newspaper material. When organic matter breaks down in aerobic conditions, nutrients and microbes seep in and saturate the surrounding soil (Atiyeh et al.

2002). Once decomposition within the soil has reached a point of stability, it is termed humus (Raviv 2005). The humus substance supposedly enhances many aspects of the soil through its infiltration of nutrients and micro-porosity (Atiyeh et al. 2002). The pores aerate the soil increasing oxygen availability as well as retain moisture (Atiyeh et al. 2002). These features and, additionally, the increased nitrogen content provide a similar effect of adding fertilizer to soil, presumably increasing plant growth.

Widespread use of compost on a national scale has potential to provide many benefits. Some of these benefits would include increasing plant growth without the use of industrially produced chemical fertilizers. Fertilizers are often rich with nitrogen and phosphorus, having deleterious effects on both aquatic and terrestrial ecosystems (Khumairoh et al. 2012). Additionally, increased global demand for food has put pressure on the agricultural industry, and previous studies have shown that compost can be used as a natural fertilizer for many major global crops including rice and corn (Das et al. 2002). While there has been a focus on using compost for these agricultural purposes, there is a lack of understanding on compost's effect on natural vegetation, including common everyday grasses.

This study examines the effect of different amounts compost on the growth of ryegrass, a major crop found at high quantities in North America and Europe. Ryegrass (*Lolium perenne*) is important because it can be grown in any area with the available water supply and sunlight, even in urban settings (Li et al. 2013). It is often used as a “cover crop” and is planted to prevent erosion, as well as cover land between growing seasons for other plants. Although compost has shown a positive impact on the plant growth of many different species, no relationship has been established between ryegrass growth and compost. It is important to understand if there is a correlation between compost and common American grass growth because the use of fertilizers and other anthropogenic factors are causing detrimental effects to many ecosystems, and compost may serve as a less deleterious alternative (Khumairoh et al. 2012).

In order to address holes in the research, this experiment examines the

impact of treating soil with decomposed organic matter on the growth of common widespread ryegrass. It tests the hypothesis that ryegrass seeds exposed to greater amounts of compost will experience stimulated growth and grow taller than seeds planted in untreated soil. The primary purpose of this experiment is to determine whether the decomposed organic matter has a stimulatory, neutral, or inhibitory effect on ryegrass growth. Establishing the relationship between compost and ryegrass growth is an instrumental step in determining the effectiveness of decomposed organic material as a means for increasing grass growth. It is preliminary to deciding whether investment in large-scale composting for common crops will be beneficial as a means to increase plant growth.

Materials and Methods:

To prepare the compost, degradable organic material including fruits and vegetable scraps, eggshells, and coffee filters were collected in a covered five-gallon bucket until full. The scraps were turned and aerated daily. Once the bucket was full, new organic material was not added. Fifty sheets of newspaper were shredded and then added to the mixture. The turning and aeration of the bucket contents continued for an additional week. The contents of the bucket were mixed in a blender to create a homogenous mixture. The blended material was returned to the bucket and mixed thoroughly a final time.

The experimental setup included thirty small pots of soil, split up randomly into three groups of ten. The first ten pots, group one, acted as the control; the pots only contained the ryegrass seeds and soil. The next ten pots, group two, received one cup of the compost mixture at the onset of the experiment. One cup of the compost mixture was added to the soil and thoroughly mixed in with the contents of the pot, to ensure its contents were spread throughout. The final ten pots, group three, received one treatment of two cups of the compost mixture at the onset of the experiment. The two cups of the organic mixture were thoroughly mixed into the soil.

After the soil had received appropriate experimental treatment, five

ryegrass seeds were planted into each pot about an inch below the surface of the soil. The plants were kept in the basement of a residential area with two solar lights set up on either side of the pots. Each pot was treated with one cup of water every other day. Five weeks after seed plantation, the experiment concluded and water treatments stopped. The tallest three strands of grass in each pot were measured and their heights recorded. These three heights per pot were averaged and evaluated as single data points. A one-way ANOVA test was used to compare the mean plant heights of each group.

Results:

The mean ryegrass height significantly increased with increased treatment of decomposed organic matter. Average plant height was significantly greatest when seeds were treated with two cups of compost ($p = 0.008$) (Figure 1). Comparing the two-cup treatment group with the control group, the mean plant height is significantly greater in the experimental group ($p = 0.005$). There was a significant linear relationship between amount of compost and mean ryegrass height ($R^2=0.841$) (Figure 2).

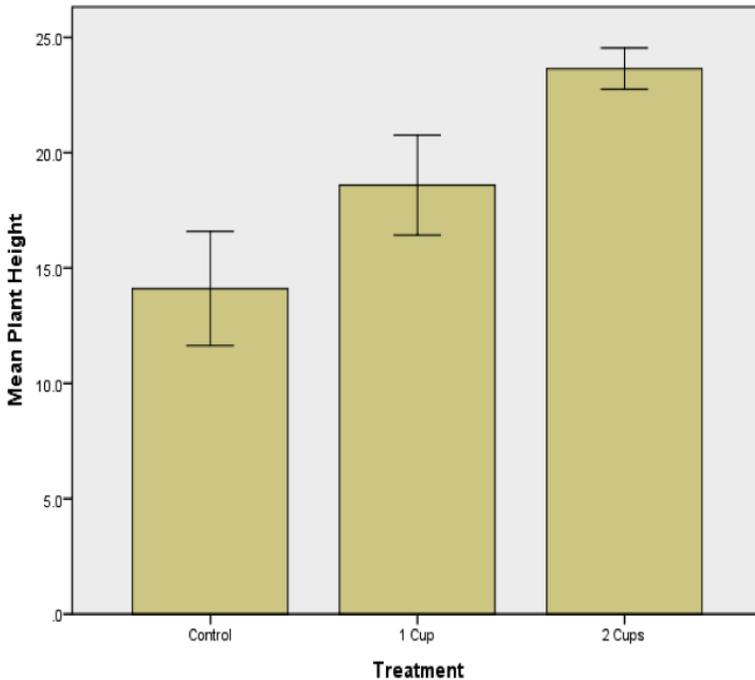
Figure 1:

Treatment	Mean Height (cm)	Std. Deviation	N
Control	14.11	7.83	10
1 Cup	18.59	6.85	10
2 Cups	23.64	2.83	10
Total	18.78	7.19	30

While there is a significant difference in means between the control group and the experimental group that received two cups, there were not any significant results involving the intermediate experimental group that received one cup of compost. The mean plant height for the group that received one cup of compost was between the two extreme groups, but was not significant when compared with

them. Comparing this group to the control and two cup treatment group gave respective p-values of $p = 0.259$ and $p = 0.184$, which are not significant values.

Figure 2: The Effects of Compost Treatment on Mean Ryegrass Height (cm)



Discussion:

The hypothesis that higher levels compost would increase ryegrass plant height was supported by the results. When comparing the control group to the group that received two cups of the decomposed organic mixture, the mean plant heights were significantly taller. The results indicate that compost has a stimulatory effect on ryegrass plant growth. The observations gathered from this experiment are comparable to those found in Khumairoh et al. (2012), showing that compost has increased the growth of many global crops. Combining these experimental results with those of previous research support the hypothesis that compost has a similar effect to fertilizer and enhances plant growth.

While a comparison of the two extreme groups supported the hypothesis that compost enhances ryegrass growth, comparisons with the group that received one cup of compost did not provide significant results. It is possible that adding one cup of the decomposed mixture to the soil was too small of an amount to provide a significant beneficial impact. In such small pots, adding the compost in smaller increments, as well as continuing to add compost at levels greater than two cups may have obtained more accurate results. A greater number of treatments given at smaller increments would provide more useful information on the ideal level of compost to stimulate ryegrass growth, and the level of treatment where growth increases significantly.

Another possible reason the intermediate group did not contribute any statistically significant results may be due to low germination. The control group contained two pots with seeds that never germinated, resulting in zero plant growth. The intermediate experimental group also contained one pot that never germinated and did not experience plant growth. With only ten pots in each group, each pot that did not show any growth had a profound impact on the mean group height. The standard deviation of groups one and two were substantially higher than that of group three, where all of the plants experienced growth (Figure 1). The plants that never germinated skew the results for plant growth, and it is possible that the compost level had an effect on seed germination.

In order to determine whether the low germination in three experimental pots is significant, further studies should have an increased sample size. A larger sample size would increase the power of the test and usefulness of the results. The fact that three out of the total thirty pots in the experiment (30%) did not experience any growth may be a contributing factor to the overall results that compost enhances ryegrass growth. It is possible that by excluding the zero values from the dataset, the results may no longer be significant, or that the group that received one cup may show statistically significant growth over the control group. The only way to really know would be by increasing the sample size in a future experiment.

While the overall results support the hypothesis that compost enhances

plant growth and increase height, it is important to be cautious when drawing conclusions from this experiment. In addition to the small sample size, the plants were set up in pots in a residential area, which does not at all resemble how ryegrass would naturally grow. A more beneficial experiment would test the effects of compost on ryegrass in an outdoor natural setting. Besides being outdoors, a natural setting would also test the effects of compost on multiple species of plant. It is possible that compost would have differential effects on multiple plants growing in the same medium.

Based on the results, it can be inferred that compost stimulates ryegrass growth. However by only testing one plant species, it is difficult to draw broad conclusions on whether compost is an effective way to increase all plant growth. It is predicted that compost would have a similar effect on plants with similar properties. These results are comparable to those of Ouni et al. (2013), which showed that compost improved the growth of two natural grass species. However in this experiment, the results suggested that compost improved the grass biomass of both species. Future studies should consider measuring both grass height, which is often important in grass appearance, as well as biomass, which is often indicative of plant quality.

Another limitation of this study involves the quality of compost used. Under ideal conditions, it normally takes approximately eight weeks for food scraps to completely decompose and saturate the surrounding soil to become humus. Due to the short time period allotted to perform this experiment, there was not enough time for the organic matter to fully decompose. The mixture added to the soil simply served as an approximation for fully developed compost. Additionally, the mixture was added to the soil immediately before adding the seeds, not fully allowing time to saturate the soil and disperse its nutrients.

The primary purpose of this study was to determine the relationship between ryegrass growth and level of compost added to the soil. Ideally, studies like this one will determine whether compost is a beneficial natural fertilizer for wide-scale use. The experimental results suggest that compost positively impacts

the growth of ryegrass, which was previously unexplored. More elaborate studies will continue to explore the multitude of benefits that composting provides, and in the future it may be used instead of common fertilizers. Future research should explore the difference in growth between compost and commonly used fertilizers to determine which enhances plant growth to a greater degree. Commonly used fertilizers have been shown to cause environmental problems with water pollution from runoff and increased health risks from exposure to chemicals, both of which are still being explored. A switch in reliance from fertilizer to compost for common grasses across America would have significant impacts in the agricultural industry. More studies like this one will provide additional evidence to support the use of compost for natural plant growth enhancement. Understanding the relationship between compost and plant growth can be used to implement new agricultural practices that aim to improve plant growth and quality without negatively impacting other aspects of the environment.

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A New Class of Supergiant Stars?

Nicholas Kern

From Astro 429, Senior Seminar in Astronomy (nominated Sally Oey)

This piece is not only eloquently written, but also captures perfectly the science described in the technical publication. Nick Kern does a wonderful job translating some complex physical phenomena in a way that is simple enough for a beginning student to understand, while also keeping the reader engaged throughout. This is very difficult to do, but he makes it look easy! Nick's work is a model for popular science writing.

Students read an assigned article from the *Astrophysical Journal Letters*, a scientific journal. After coming to an understanding of this technical work, they were assigned to write a 2-page popular summary of this article that an Astro 102 student would be able to understand, modeled after the Astrobites website: <http://astrobites.com>. The paper should include the scientific background and motivation for the work, and a description of the work and its findings.

Sally Oey

A New Class of Supergiant Stars?

Stars are the products of large clouds of gas and dust that have taken millions of years to collapse under gravity. This collapse proceeds until the cloud is clumped into an ultra-dense ball of gas, and has an internal temperature high enough to start thermonuclear fusion of hydrogen. But not all of the gas from the parent cloud makes its way to the star's surface during collapse. Sometimes part of it remains as a disk around the star, suspended as the star's radiation begins to burn through it (Figure 1). Most evolved stars have no disk; however, if a disk is present, it can be inferred through its strong thermal radiation, which is called a continuum source because it radiates at all wavelengths. A disk also emits radiation at specific wavelengths, called line emission. In rare cases, when the circumstellar disk has very a low density, we see forbidden line emission, which is a kind of emission that is initiated very rarely, hence "forbidden", and can only be present in low-density gas. Therefore, if we see a star with line emission and forbidden line emission, we can deduce that 1.) the star has a circumstellar medium around it, and 2.) the star is also surrounded by a low-density gas, however, this process is still not fully understood. Is there a circumstellar disk around only young stars? Or are there stars that live out most of their lives with a disk? The answers to these fundamental questions add to our incomplete knowledge of stellar evolution, and if we can address these issues we gain crucial insight into an important stage of the stellar lifecycle.



Figure 1: An artist's conception of a circumstellar disk around a young star. In the most likely scenario, the radiation from the star heats the disk, which in turn gives off both thermal and line emission. (Image credit: NASA).

Some of the kinds of stars we see line emission from are large and bright stars with a high surface temperature, also known as B stars, which is a type of extremely large stars, called supergiants. B stars that show line emission are called Be stars—“e” for emission—and Be stars that also show forbidden emission are known as B[e] stars: “B-bracket-e” stars. This is exactly the kind of star that Graus et al. (2012) find in their paper, titled, *Discovery of New, Dust–Poor B[e] Supergiants in the Small Magellanic Cloud*. They identify three stars that show signature traits of B[e] stars, which are rarely found. However, there is something peculiar about the stars they find. B[e] stars probably have surrounding material shrouding the star, partially in the form of dust, which increases the amount of thermal radiation the system gives off as a whole; heated dust gives off strong thermal emission. The B[e] stars found by Graus et al. (2012), however, show very little thermal emission, which suggests that there is either less circumstellar material around these stars, and therefore less dust, or that the material that is present has a low dust content. This is problematic, because forbidden line emission classifies these stars as B[e] stars, but low thermal emission also supports a normal Be classification. Graus et al. 2012 addresses this issue as well as the broader implications of their findings: what exactly is the evolution of B[e] stars, and should there be a subclass within the B[e] classification that encompass the kind of B[e] stars they find?

The life cycle of B[e] stars is a complicated issue. In an attempt to constrain the evolutionary state, Graus et al. (2012) comment that their survey picks out only young and bright, or old and bright supergiant stars. This means that their stars are either very young supergiants, called Herbig objects, or evolved supergiants. This distinction is crucial, because if the latter is true, these stars suggest that a circumstellar disk may be a prolonged feature in some supergiants that spans part of stellar lifetime. To find out, they searched the regions surrounding the stars and found that they are not present in active star formation regions, which suggests they are not young Herbig objects and are therefore probably evolved supergiants, reinforcing the notion that these stars may shed light on circumstellar material in evolved stellar systems.

We would also like to resolve the question of how these stars compare to other normal B[e] stars with high thermal emission, and normal Be stars with low thermal emission. To reiterate, the stars found by Graus et al. 2012 have forbidden line emission, which classifies them as B[e] stars, but they also have low thermal emission, which would support a typical Be classification. Figure 2 is a plot of brightness of the stars at one color against another color, which is a good way to trace the evolution of a star because stars change color as they evolve with time. It is evident from the diagram that these newly found stars may connect the stars on the lower left and upper right. All of these results suggest that supergiant B[e] stars with a low dust content may act as an evolutionary bridge between supergiant Be stars and supergiant B[e] stars, perhaps meriting, as Graus et al. 2012 argue, a whole new classification in itself!

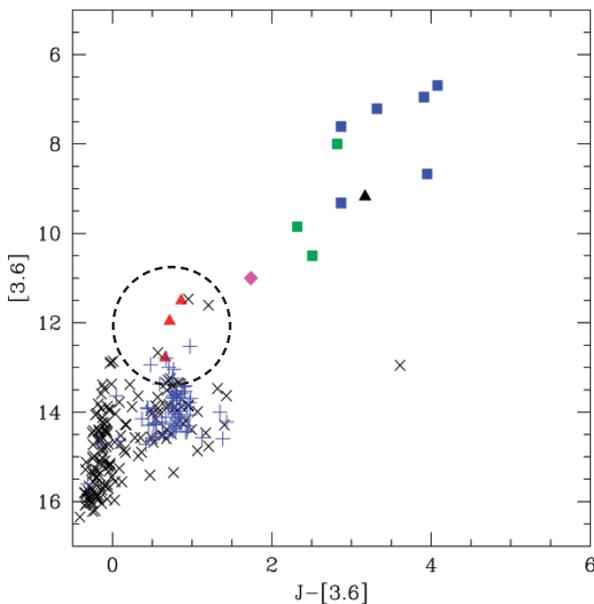


Figure 2: A color-magnitude diagram of other known Be & B[e] stars, and the three B[e] stars found in this paper, highlighted in **red triangles (circled)**. The newly found stars help bridge the gap between the collection of points in the lower left and upper right, possibly indicating their role as an evolutionary bridge. (Taken from Graus et al. 2012.)

In summary, Graus et al. 2012 present the discovery of three new supergiant stars in the Small Magellanic Cloud that show forbidden line emission, which suggests that these stars can be classified as supergiant B[e] stars. However, they also show low thermal emission, are not in evident star formation regions, and, when projected onto a color magnitude diagram, show that they may bridge the evolutionary stages from normal evolved Be stars and normal evolved B[e] stars. All of this evidence argues that a new classification of supergiant B[e] stars with low thermal emission might be warranted, and that further exploration into this particular phenomenon is needed, as it might elucidate a previously unknown, yet important stage of the evolutionary cycle of supergiant stars.

References:

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Winning Essays

Granader Prize for Excellence in Upper-Level Writing (social sciences)

A Fair System of Education

Maximillian Huppertz

From Econ/Phil 408, Philosophy and Economics (nominated by Frank Thompson)

This is one of a handful of the best original term papers I have received in a half-century of teaching.

Frank Thompson

Tuition as Fairness: John Rawls, Education & its Price

The effect of tertiary education on individual income, as reflected by the wage premium, is substantial (Burbridge, Magee & Robb 2002; Grogger & Eide 1995; Walker & Zhu 2005). Its effect on aggregate social and economic outcomes is equally important (Krueger & Lindahl 2000; Saint-Paul & Verdier 1993; Solow 1956). It's important for a society, then, to make sure that it has the "right" system of higher education. In this paper, I'll discuss a system that can be perceived as "right" or "fair" in so far as that it's "just". My condition for a just system of education is this: it must be just in a Rawlsian sense. That is, it must respect the ideas of equal liberty, fair value of equal opportunity and the difference principle, as well as be compatible with the general notion of Justice as Fairness, as laid down in Rawls (2001).

An economic analysis of tuition fees

I ground my analysis of what a fair system of tuition might look like on a simple economic model. First, let's assume an aggregate production function of the form:

$$(1) Y = F(A, K, H, L) = A^\epsilon K^\alpha H^\beta L^\gamma$$

Where Y is output, A is technology, K is capital, H and L are two types of labor ("high-paying" and "low-paying", as we'll later see, but for now just two different types of jobs people have to do in order to keep the economy functioning) and α , β , γ and ϵ are parameters [$\alpha + \beta + \gamma + \epsilon = 1$; $\alpha, \beta, \gamma, \epsilon > 0$]. Assuming perfect competition, every factor of production will be paid its marginal product, so wages are:

$$w_H = MPH = \beta \frac{A^\epsilon K^\alpha L^\gamma}{H^{1-\beta}} \qquad w_L = MPL = \gamma \frac{A^\epsilon K^\alpha H^\beta}{L^{1-\gamma}}$$

Where w_H is the wage paid to workers with high-paying jobs and w_L is the wage paid to those with a low-paying job.

Where does the education system come into play? I model labor markets as a lottery. Everybody decides whether to enter this lottery after high school or after college. Those two groups have different labor markets (i.e. they face different lotteries). The labor market for college graduates offers a higher chance of getting a high-paying job. However, there's always the risk of dropping out. Every agent i in the economy has only one endowment: her/his likelihood of graduating from college if they decide to attend, P_i^1 . If they go to college, they will have to make an up-front payment L , for which they have to take out a student loan, which means that after graduation they'll have to pay student loan rates of l per period. I assume that individuals care only to maximize their expected lifetime income, $E(Y_i)$:

$$U_i(Y_i) = E(Y_i)$$

So then for those individuals who decide to go to college, the following inequality must hold (note that I assume risk neutrality):

$$(2) P_i \frac{\delta}{1-\delta} [p_{H|U}(w_H - l) + p_{L|U}(w_L - l)] + (1 - P_i) \frac{\delta}{1-\delta} [p_{H|S}(w_H - l) + p_{L|S}(w_L - l)] \\ \geq \frac{1}{1-\delta} [p_{H|S}w_H + p_{L|S}w_L]$$

Where P_i is the aforementioned likelihood of graduating from college, δ is the discount factor (I assume a uniform δ across individuals with $0 < \delta < 1$), and $p_{X|Y}$ is the probability of getting a high-paying ($X=H$) or low-paying ($X=L$) job contingent on attending university ($Y=U$) or sticking with secondary education – high school – only ($Y=S$). I assume that $p_{H|U} > p_{H|S}$ ². So basically, college must be worth it.

1 I won't go into detail as to what determines P_i . It could be anything from inborn, "natural" ability to socialization or primary and secondary education. In my model, agents simply have a certain value P_i , and things take off from there. In that sense, I also don't take a general stand on what distributions of P_i are permissible. That would be the topic of another paper.

2 It's of course possible to assume a utility function that satisfies $U_i(Y) \rightarrow U_i' > 0$; $U_i'' < 0$ and risk-averse agents and go through the rest of the analysis using those assumptions. However, it makes things a lot less tractable and doesn't add substantially to my argument.

This also allows us to see why (i.e. under what conditions) $w_H > w_L$ would indeed hold. Note that:

$$w_H > w_L \Leftrightarrow MPH > MPL \Leftrightarrow \frac{\beta}{\gamma} > \frac{H}{L}$$

So for $w_H > w_L$ to be true, only relatively few people can get high-paying jobs and/or the aggregate share of output paid to those in high-paying jobs β can't be too small relative to the share received by low-pay workers γ . The first condition will be satisfied in the model assuming a positive skew for the distribution of P_i across the population³. I don't take a stand on the distribution because the model doesn't require it, but reality lends credibility to this assumption if the model were applied to Europe or the US. The second condition is also corroborated by experience (at least for "Western" countries).

Given equation (2) (and thus given a certain level of tuition and payments l), a certain number of people μ will attend college and graduate. Again, I don't take a stand on the exact distribution of endowments here, so I can't calculate the exact value. These people contribute to the overall human capital in the economy, and affect its production technology:

$$(3) A(\mu) \rightarrow A'(\mu) > 0$$

Of course, sending these people to college isn't free; you need instructors, space and the like. The education system incurs total cost c :

$$c(\mu) = \Psi + c_v(\mu) \rightarrow c'(\mu) > 0$$

Where Ψ is a fixed cost needed to have any sort of education system at all (say, university buildings) and c_v is variable cost per student (having to hire more lecturers etc.). This leads to a budget constraint of the form:

$$(4) c(\mu) \leq \mu L + T$$

Where T are aggregate taxes collected from all workers in the economy. In

³ So long as $p_{H|U}$ is sufficiently larger than $p_{H|S}$.

a Rawlsian framework, a progressive income tax is appealing⁴, so let's tentatively assume that:

$$T = \sum t_H + \sum t_L$$

Where t_H are taxes paid by those in high-paying jobs and t_L are taxes paid by those in low-paying jobs.

Taxation

Is this actually fair? Would these people be willing to fund the education system? Wouldn't these taxes perhaps hurt the least advantaged? In that case, an optimal system of education would simply be paid for by tuition fees and nothing else. To see that this is not so and these taxes are permissible, let's assume we're in a situation like the one described just now: all education is paid for by tuition fees. This will lead to a very low college attendance μ_{fees} under this system due to the high tuition fees necessary to fund it⁵. To see that this could potentially be improved by levying taxes, note that:

$$\frac{\partial w_H}{\partial A} = \epsilon\beta \frac{K^\alpha L^\gamma}{A^{1-\epsilon} H^{1-\beta}} > 0$$

$$\frac{\partial w_L}{\partial A} = \epsilon\gamma \frac{K^\alpha H}{A^{1-\epsilon} L^{1-\gamma}} > 0$$

So wages rise in technology. Now, the link between taxes and technology is this: assuming that the education system is not allowed to run a surplus (i.e. (4) must be an equality), any increase in taxes will, ceteris paribus, lead to a reduction in L and thus also in the periodical payment l. Considering (2), we see that this will increase college attendance, so:

$$\mu(T) \rightarrow \mu'(T) > 0 \Rightarrow t_x(\mu) \rightarrow t'_x(\mu) > 0$$

4 I'll later show formally that this model does indeed yield a progressive tax system.

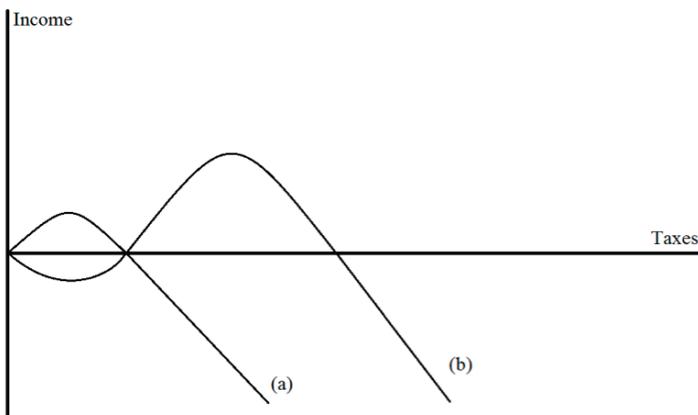
5 Ah, you say, but with fewer students the cost of the education system should be negligible. Alas, we still have the fixed cost that needs to be covered. If the education system can't pay for the fixed cost, there won't be any higher education at all. I assume that that's an undesirable outcome and that $A(0)=0$, or at least rather close to that point. So tuition won't be low, despite the low attendance.

So there is a rate of taxation t_x for both types of workers ($X=H$ or $X=L$) correspondent to every level of μ . Which means that it is possible to raise individual income I_x of people in both types of jobs by levying taxes up to the point where:

$$\frac{\partial I_H}{\partial \mu} = \frac{\partial [w_H(\mu) - t_H(\mu)]}{\partial \mu} = 0 \Leftrightarrow w'_H(\mu) = t'_H(\mu)$$

$$\frac{\partial I_L}{\partial \mu} = \frac{\partial [w_L(\mu) - t_L(\mu)]}{\partial \mu} = 0 \Leftrightarrow w'_L(\mu) = t'_L(\mu)$$

This will yield an optimal college attendance from the workers' point of view μ^* and an optimal level of taxation $t_x^*(\mu^*)$. Note that for t_x^* to be greater than zero (and $\mu^* > \mu_{\text{fecs}}$), we assume that given the initially high level of tuition, raising taxes will disproportionately increase college attendance and therefore technology and wages. This works if the distribution of P_i does indeed have a positive skew. Above t_x^* , raising taxes won't raise wages any further but will instead depress them (see (a) below). Note also that wages needn't rise at all initially. It's perfectly possible to have some threshold level of taxes t_x^t below which taxes depress income, but between which (and up to t_x^*) raising taxes raises income (this depends on the exact relationship between college attendance μ and technology A ; see (b) below):



Note that t_x^* won't be identical for those with a high and those with a low wage⁶. The tax system will be progressive, because the return to technology is higher for those in high-paying jobs:

$$\frac{\partial w_H}{\partial A} > \frac{\partial w_L}{\partial A} \Leftrightarrow \epsilon\beta \frac{K^\alpha L^\gamma}{A^{1-\epsilon} H^{1-\beta}} > \epsilon\gamma \frac{K^\alpha H^\beta}{A^{1-\epsilon} L^{1-\gamma}} \Leftrightarrow \frac{\beta}{\gamma} > \frac{H}{L}$$

Which is a condition we already know: it's what makes high-paying jobs high-paying jobs in the first place. So for any given level A , the wage gain from increasing μ (and thus A) for high earners is greater than that for low earners, while the marginal increase in taxes necessary to raise μ is equal. This will induce high earners to pay more taxes than those with low wages (it will further increase their income). This also means that both groups benefit from each other's contributions, because they wouldn't be able to raise μ as far on their own (while still experiencing an increase in wages) as they are together.

The idea of taxing people (and especially low-wage earners) only up to the point where that is to their own benefit is very much a Rawlsian idea. Consider his condition for the provision of medical care, which should be provided "up to the point where further provision would lower the expectations of the least advantaged" (Rawls 2011). Why not tax the high earners a little more? That question should be at the back of our minds as we turn to the other possible source of educational funding: tuition fees.

6 You might wonder here what those high earners who also pay back student loans have to say about this, since we've ignored loan payments in the calculation of the optimal tax rate for high earners. They'd certainly like it if everybody else (excluding themselves) paid even more taxes to lower their individual tuition fees. The income tax, however, is set by some state apparatus and based solely on income, not on income minus tuition fees. The fees are set by the education system, and that system in turn doesn't care about taxes. So at best, college graduates can ask for a tax increase on everybody, including themselves. But it doesn't make sense to ask for a tax increase for high earners to decrease tuition when you're a high earner yourself. You'll just shift expenses from tuition fees to taxes. So they might think about asking only low-wage workers to pay more taxes. That's not something Rawls would endorse; we haven't specified yet who the least advantaged are in this model, but as we'll see later low-wage workers make up the bulk of that group. So increasing their taxes means helping the more advantaged at the expense of the less advantaged; in a Rawlsian state, that is not permissible.

Tuition Fees

So we've seen that taxes are a permissible way of funding our system of higher education. Could there be any reason to levy tuition at all then? The idea of a free system of education is certainly appealing. I'll show that there are indeed good reasons to maintain tuition fees in addition to taxes as a source of funding. First, however, I must make a note on the feasibility of levying tuition fees in the way that they are being levied right now.

One important assumption was necessary for the analysis so far: no borrowing constraints. Assume now that some agents are unable to make the up-front payment L necessary to attend college (because they can't get a loan). Some of those people satisfy equation (2), however. Then those people, whose expected income if they go to university is higher than their expected income right after high school, can't go. And not for some fundamental reason, but simply because they can't borrow money against their future income. This invalidates several of our findings so far. It's necessary, then, to solve this problem. The solution is relatively easy; it's merely required that tuition fees be paid after finishing college. As soon as they graduate, people have access to an income and can thus pay back tuition fees that were implicitly loaned out to them during their time in college. This changes nothing about our model, because the payment l per period remains in place until L has been paid back⁷. With that in mind, we're back to continue our analysis.

While I'll show later why tuition fees may be necessary, I'll start out by simply assuming that fees are being levied. This is because I first give general reasons as to the desirability and permissiveness of tuition fees. This part of the discussion will be less formal at first, but I don't think that makes it less instructive or convincing.

⁷ Of course, it's never really paid back in this model. People live forever and pay back tuition for all eternity. While that's obviously unrealistic, it does really simplify the math. Also note that if people lived a limited amount of time and paid back a limited amount of tuition that induces the same behavior as receiving income forever and paying fees forever (so long as they don't know exactly when they'll die, in which case they might choose end-game strategies and renege on their payments. But this is not a paper in Game Theory). Lastly, it's of course possible to set the periodic payment l in such a way that its present value is exactly equal to L even though it's paid for all eternity, so long as δ remains in the permitted range.

The first reason for having tuition fees is grounded in the idea of Justice as Fairness itself. As Rawls points out, funding tertiary education (and especially abstract science) is not, in and of itself, so unique and special as to warrant spending any amount of public resources on it. Indeed, any funding directed towards it “requires a basis in advancing the good of citizens generally” (Rawls 2001). This is very much in line with our inquiry into taxation: finding out which part of higher education benefits society as a whole (and the least advantaged), and deciding how much public funding should be devoted to it.

There is, however, not just a social benefit to higher education in this model. College graduates have a higher chance of receiving a high wage. That means that individually, they profit from going through college. Is the reason why they profit from this increased expected income fair? Hardly so, it would seem. What’s fair in this model are the wages people receive after high school: everybody faces the same lottery. Receiving a lower wage or higher wage, then, is a case of what Anderson (1999) calls “brute luck”. It’s not something a political conception of justice, or an economic analysis, should focus on. If people were selected to go to college randomly, even that might be considered “fair”, in a sense.

But they aren’t: college students are systematically different from others, because their endowment P_i is higher than that of those who stick with high school. That’s precisely why they decide to go to college. They didn’t earn their endowment. There’s also no way of knowing *ex ante* what one’s own endowment will be. So there is no reason to regard their higher expected lifetime income as somehow deserved. Here, then, is the answer to the question of higher taxation for higher income brackets: tuition fees act, as it were, as an increase to the income tax people pay anyway. That means that two high earners, one of them a college graduate and one of them a high school graduate, don’t pay the same amount of money to fund education. The college graduate pays more. This is because his expected income was higher to begin with. The high school graduate simply got lucky, but the lottery he faced was much less favorable than the one the college graduate faced. In that sense, tuition fees are the price people have to pay to play the better

lottery (given that the fact that they are able to play it – their high endowment – is completely undeserved).

Are tuition fees necessary though? So far we simply assumed that they would be levied. There are several reasons to believe that might indeed be the case. There is one rather technical reason to believe that. So far we assumed that:

$$A(\mu) \rightarrow A'(\mu) > 0$$

Which is likely somewhat inaccurate (although that doesn't matter for our results so far). It's more likely that not simply the number of students, but the funding per student is important for educational output and thus the impact on technology⁸:

$$(3.1) \quad A\left(\frac{\mu L + T}{\mu}\right) \rightarrow A'\left(\frac{\mu L + T}{\mu}\right) > 0$$

Now there's an interesting dynamic here: increasing T increases not only available tax funding, but also increases μ (and thus has an ambiguous effect on funding per student). Increasing L not only increases tuition payments per student, but also decreases μ (and thus also has an ambiguous effect on funding per student, keeping in mind the fixed cost Ψ). This means that to ensure a constant effect on technology, both tuition and taxes will be necessary (assuming this relationship is more realistic than the one formerly stipulated). Of course, this is ultimately an empirical question, and beyond the scope of this theoretical paper.

Another reason we (implicitly) came across already, during our discussion of taxation as a necessary and fair source of funding. We saw that there is a maximum amount of taxes levied from each group τ_x^* . We assumed a system that's completely funded by tuition fees and started out from there. The assumptions needed for τ_x^* to be very large (i.e. large enough to cover the complete expenses of sending anybody to college who'd want to go and reducing L to zero) are quite strong. For

⁸ Tentative evidence for this is that American universities have much larger financial resources and are consistently ranked above European universities in international reviews, despite having comparable numbers of students.

one, we need to assume that wages rise in taxes indefinitely⁹, which requires us to drop the assumption of constant returns to scale implicitly made in (1), because:

$$\frac{\partial^2 w_H}{\partial A^2} = (\epsilon - 1) \epsilon \beta \frac{K^\alpha L^\gamma}{A^{2-\epsilon} H^{1-\beta}} > 0 \rightarrow \epsilon > 1$$

$$\frac{\partial^2 w_L}{\partial A^2} = (\epsilon - 1) \epsilon \beta \frac{K^\alpha H^\beta}{A^{2-\epsilon} L^{1-\gamma}} > 0 \rightarrow \epsilon > 1$$

And of course $\epsilon > 1$ implies increasing returns. Not only that, but we also need to make stronger assumptions about the way increases in μ influence A . Even reverting back to (3)¹⁰, since we can only directly influence college attendance but not technology via taxes, we'd need:

$$A''(\mu) \geq 0 \rightarrow \frac{\partial^2 w_x}{\partial t^2} > 0$$

Otherwise diminishing returns here will counter the wage gains. This also makes the assumption that $w_H > w_L$ less credible, because H and L would be influenced¹¹. Note that none of this is to say that it's impossible for such a situation to arise, and if it does then the optimal level of taxation may be such that tuition is unnecessary. If these assumptions don't hold, however, then the level of taxation exceeds the optimal level.

Well, you might say, but what about taxing the high earners a little more? That would raise low earners' wages by increasing A and thus increase the prospects of the least advantaged, wouldn't it? This is a misconception of who the least

9 Or at least until almost the whole population goes to college, because at $L=0$ nearly any $P_i > 0$ will induce people to go to college unless δ is extremely small. Given that δ is the population's discount factor, that's rather unlikely barring an unforeseen and gigantic catastrophe that dramatically shortens people's time horizon. I assume no unexpected alien invasions in this model.

10 Which is much more favorable to a purely tax-funded system, given that (3.1) essentially assumes complementarity.

11 Note here that this would induce $w_H = w_L$, but at the price of a heavily reduced total output and individual income due to taxes. Rawls stresses that some wage inequality is necessary for an economy to efficiently function, and this inequality is likely a part of that.

advantaged are. They're not the group of low wage earners. They're all those people whose prospects of lifetime income were lowest to begin with¹², so they're all those whose P_i is below the required minimum for college attendance. So the correct way of taxing "a little more" is to levy tuition fees, thus reducing the prospects of the most advantaged group in favor of the least advantaged. Ideally, those fees are such that (4) holds, given tax contributions (which we know are fair).

One last issue must be addressed: what happens to those who drop out of college and end up in a low-wage job? Or those who go to college but still only get a low-paying job? Reconsider the decision problem, but let's say:

$$\begin{aligned}
 (2.1) \quad & P_i \frac{\delta}{1-\delta} [p_{HU}(w_H - l_{HU}) + p_{LU}(w_L - l_{LU})] \\
 & + (1 - P_i) \frac{\delta}{1-\delta} [p_{HS}(w_H - l_{HS}) + p_{LS}(w_L - l_{LS})] \\
 & \geq \frac{1}{1-\delta} [p_{HS}w_H + p_{LS}w_{HL}]
 \end{aligned}$$

Where tuition is now contingent on income and educational attainment, so that l_{XY} is tuition for those in job $X=H$ or $X=L$ and with educational attainment $Y=U$ (if people graduate from college) or $Y=S$ (if they drop out and have only their high school diploma). There's no question about what to do with those college students who attend university and get a high-paying job (even if they drop out). They had the best prospects to begin with and are able to pay tuition (they're in the highest income bracket). So they pay the "full amount" of tuition as determined by (4).

What to do with those students who get a low-paying job (regardless of educational attainment) is more difficult, and requires a more careful reading of Rawls. He says that we are to regard "the distribution of native endowments as a common asset" (Rawls 2011), and that people are not to be punished for their

¹² This is in line with Justice as Fairness as pure procedural background justice. It is concerned with people's prospects over a complete life, not their actually realized income.

endowments. Assuming that w_L still provides people with a standard of living worthy of citizens who regard themselves as free and equal (nothing less will do in a Rawlsian setting), it's reasonable to ask for some form of contribution from these people, given that their prospects were higher than those of most of their contemporary low-wage workers¹³. However, it may be reasonable, depending on the circumstances¹⁴, to ask for less, so as not to discourage college attendance too much, so that:

$$l_{H|U} = l_{H|S} > l_{L|U} = l_{L|S}$$

This requires some qualitative judgment and a sense of fairness that is beyond the scope of this model, but certainly within the framework set out by Justice as Fairness. There are other arguments to be made in favor of tuition contingent on income¹⁵, but they are beyond the scope of this text.

Conclusions, if any

The system of education laid out in this text – a hybrid of tax and tuition funding with ex post tuition payments – is promising and practically implementable. The initial implementation would require additional tax funding, since the first cohorts would go through the system without anybody already paying back their fees. There's no perfect solution to this. I would, however, argue that this is acceptable so long as you accept my premise that the proposed system is fair in a Rawlsian sense. In that case, society uses its taxes to rectify a social injustice – to implement a just system of tertiary education. When society encounters a problem with social justice, it can't just notice it and say: "Oh, but there's no perfect way

13 You'll note that this means that high-wage earning college graduates may be forced to pay more tuition than they would if everybody was forced to pay the full amount. That is admissible so long as it doesn't depress their lifetime prospects too much (i.e. so much as to greatly hamper economic efficiency).

14 Mainly the level of w_L . A very low level will make it more attractive to reduce their payments so as not to bleed these people dry.

15 Perhaps the most convincing being that certain subjects – say, philosophy or theoretical physics or maybe even the arts – may yield great social rewards, but small personal ones. Other subjects – say, getting an MBA – may hold much more personal and possibly less social reward. Society may thus have an incentive not to further discourage people from choosing subjects with large social but only small personal gains. An analysis of tertiary education with heterogeneous returns to subjects would be an interesting topic for a paper utilizing and expanding upon a similar framework to the one used here.

to pay to change it, so we might as well leave it as it is.” Clearly, leaving things as they are is not fair or just. The cost of changing things is a second-best solution, but arguably (seeing how every future generation will benefit from it, in addition to current prospective students and/or current taxpayers, depending on the system in place) better than simply living with a glaring social injustice.

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Record Keeping in Ancient Civilizations

Sarah N. Cunningham

*From Anthrac 386, Archaeology of Early Civilizations
(nominated by Carla Sinopoli)*

Sarah's paper "Record Keeping in Ancient Civilizations" was a beautifully crafted narrative. She presented a comparison of cuneiform writing in Mesopotamia in the third millennium BCE with early Chinese writing (of the late second millennium) on bones and turtle shells. The first developed for economic record keeping; the second for royal divination activities. Sarah described the history and use of writing in each of these contexts, through tracing the trajectories of objects, and then presented a thoughtful and creative comparison that delved into the use and meaning of material technologies in early civilizations. While most students did a solid job in presenting evidence from each civilization separately, many fewer were able to step above the specific cases to think about the role of writing more broadly and what was different and similar between these two ancient societies. Even fewer accomplished this with elegant and clear writing. The GSI and I gave Sarah the only perfect score was assigned for a paper all semester for this piece of writing, and hope you also share our admiration for her work.

Carla Sinopoli

Record Keeping in Ancient Civilizations

A to-do list, an account ledger, a shop receipt, a diary—these commonplace items are essential in contemporary society to organize and structure modern priorities, economy, and even experiences. Record-keeping helps to expand the finite capacity of human memory through external, physical means; therefore, what humans choose to record is a direct reflection of what they deem important to remember (Basu and Waymire 219). Taken one step further, what humans deem important to remember reflects issues of importance within human cultures, and indicates cultural values or outlooks. Therefore, the content and context of record-keeping by early civilizations allow archaeologists to further discover the role of record-keeping in society as well as the motivations, values, and organizations of early state societies (Basu and Waymire 223; Gibson 121). By comparing the use, manufacture, and time period of Early Dynastic cuneiform tablets and Shang Dynasty oracle bones, archaeologists are able to determine that in Mesopotamia, cuneiform record keeping was focused on current economic and administrative functions, and later on historical preservation, while Shang dynasty oracle bones were focused on guiding future administrative decisions. This reflects a broader understanding of early state societies by displaying how writing arises naturally to fill a need within society, but the path that these writing forms may take is subject to the values and principles of the society, and is almost always limited to the use of elites to promote social inequality.

Cuneiform tablets are first seen in the late Uruk period in Mesopotamia, and developed throughout the Jemdet Nasr and Early Dynastic/Sumerian periods. The Uruk period involved a great number of early city-state “experiments” or attempts at state society formation, which ended in widespread conflict (Sinopoli Sept 24 2013). From this turmoil emerged a network of small city-states during the Early Dynastic Period, organized in an “oikos” or “household” economy in which the major socioeconomic unit consisted of large household estates controlling vast amounts of agricultural land and surrounding hamlets (Sinopoli Sept 24 2013).

This network of city states necessitated regulation of long-distance trades and transactions between various estates, and so led to the development of record-keeping devices such as *bullae* and cuneiform.

Cuneiform consists of a wedge-shaped reed stylus pressed into wet clay, and was preceded by earlier forms of record keeping, such as clay tokens, to represent items in economic transactions (Basu and Waymire 214). Small tokens were used to keep track of figures in early transactions, and after these tokens emerged *bullae*—fired, hollow clay balls with sealed tokens inside (Sinopoli Sept 24 2013). These were impressed with the seals of trade partners and/or witnesses to ensure accountability and provide a permanent record that was difficult to alter. *Bullae* then gave way to solid tablets and cuneiform writing (Basu and Waymire 214). These clay tablets were usually unfired, meaning that, while useful for short periods of time, these tablets were meant to be transient (Sinopoli Sept 24 2013). This allowed ancient Mesopotamians to promote accountability in present transactions through records that could verify trades or production quantities in the short term, but these records were most likely not important for long periods of time. Because the tablets were unfired, they could be recycled by wetting the surface to remove previous writing and inscribing new records where old writing had been, providing further evidence of the impermanent nature of the data inscribed (Sinopoli Sept 24 2013). These cuneiform tablets were created by scribes, specially trained individuals usually in the employ of kings, landowners, or temples. These scribes were trained in scribal schools and were the primary readers and writers of cuneiform tablets (Sinopoli Sept 24 2013, Gibson 119).

While a large quantity of known cuneiform tablets were used in economic transactions, cuneiform tablets recorded other important data as well. Some of these data include land transfers, agricultural information, administrative texts regarding income and rations, letters, contracts, architectural plans, etc., which, while not strictly transactional, recorded data which was important for structuring and overseeing activity within a city-state or estate (Gibson 119). A great number of tablets containing lists have also been found, including the Tribute List,

Standard Professions List, and other lexical lists. It has been argued that these mainly served as a training tool for early scribes as well as a mnemonic device—by writing down this information, scribes could learn the text as well as memorize important documents (Crawford 113, 296; Veldhuis 187-197).

What was not recorded by the ancient Mesopotamians is equally as important as what was recorded and tells us more about the nature and use of cuneiform tablets. While there is evidence of a rich mythology in Sumerian society, no cuneiform tablets recording that mythology have yet been found (Crawford 334-335). This helps to confirm archaeologist's inferences regarding the transient nature and use of these cuneiform documents. Mythology is often passed down through generations, so if it were recorded, it could provide a permanent record of societal beliefs to be handed down to younger generations. Yet mythology does not appear to be transmitted or recorded on cuneiform tablets, which could imply that they were not important in recording permanent information. Over time, cuneiform writing was utilized on more permanent materials such as stone (Code of Ur) or in the shape of a fired clay prism (Sumerian King List), but clay tablets continued to be used to record impermanent data (Sinopoli Sept 24 2013, Ashmolean Museum).

In sum, cuneiform tablets were prominent in the Early Dynastic/Sumerian period and arose out a need for communication and organization of a network of city-states in the newly arisen "oikos" economic structure. These clay tablets were created and read by specially trained scribes, and were used primarily as records of economic transactions, though these records were not meant to be permanent. Their transient nature can be seen through the information they record (and do not record), in their unfired quality, and through the development of cuneiform writing on other more resilient materials for data meant to last.

Oracle bones were used as a form of divination in ancient Chinese civilizations, primarily during the Late Shang Period. The Late Shang Period lasted from approximately 1250-1046 BCE and was centered near the modern day city of Anyang, in the Yellow River Valley (Flad 405). The capital consisted of

two cities—the first, Huanbei, was built near the Huan River and only occupied for about fifty years before it was burned and a new city, Yinxi, was built south of the river. Huanbei was a planned city built on a grid system, while the second city, Yinxi, was much more sprawling and contained “neighborhoods” associated with cemeteries and elite residences, as well as temples associated with the royal cemetery. Late Shang society was very complex, with large amounts of craft production (such as specialized bronzes and jades), very elaborate royal burials, human sacrifices, warfare, and control of a fairly large region throughout the Yellow River Valley, primarily through a series of estates owned by a governing family or class (Sinopoli Nov 7 2013).

Oracles bones consisted of animal bones (usually turtle plastrons or cattle bones) which were inscribed with questions concerning the future and fired until the bones cracked. These cracks were then read by specialized diviners (Sinopoli Nov 7 2013). Early oracle bones often show no signs of pre-treatment or, if they were pre-treated, there was little standardization to the pre-treatment process. Over time, the development of pre-treatment processes such as bronze drilling became standardized and allowed for exclusivity in divination, as access to bronze technology was limited almost exclusively to the royal class (Flad 411). Access to turtle plastrons was also controlled by the ruling class, as turtles often had to be obtained through long-distance trade with cities to the east. If the prediction obtained through the diviner’s reading of the cracks came to fruition, this outcome would be inscribed on the bone alongside the original inscription before the bone was discarded, often into large pits (Sinopoli Nov 7 2013).

The questions asked in these oracles bones give insight into the main concerns of elites in Late Shang society. The use of oracle bones was limited to kings and nobles, and specialized carvers and diviners were employed by the ruling class to create and read the bones. Often questions asked by the ruling class involved “sacrifices, military campaigns, hunting expeditions...weather, agriculture, sickness, childbirth, success or troubles, dreams, settlement building, the issuing of orders, tribute payments, divine assistance or approval” as well as the fortuity of an

upcoming week, day, or night (Keightley 183). These questions, recorded in oracle bones, provide essentially a diary of the concerns and problems faced by these rulers—rulers were interested in the outcomes of these questions, and presumably looked to oracle bone readings to inform their decisions. Through analysis of oracle bones, archaeologists are able to determine issues of importance in the administration of the Shang society.

Because access to oracle bones was limited to use by elites through exclusivity of oracle bone technology and pre-treatment processes, elites became the sole individuals with access to knowledge of the future. This process legitimized the Shang rulers through control of important and revered knowledge in Shang society. Rowan Flad, in his article “Divination and Power” argues that “social status may be based on the restriction of access to certain categories of knowledge” (Flad 403). By controlling access to oracle bones and oracle bone technology, elites of the Shang dynasty monopolized knowledge of the future, and thereby created for themselves a high status in society. This is especially evident during the end of the Late Shang period, in which the king became the “chief diviner,” rather than relying on employed diviners (Flad 406). In addition, through their specialized knowledge, Shang rulers legitimized their right to rule. Divination, Flad argues, is used to shape experience and bring order to the unknown (Flad 403). By controlling access to divination, Shang kings became the only individuals with the ability and knowledge to structure and understand the unknown. This placed them in a position of unquestionable power and therefore indisputable authority, making oracle bones and the information they provided an important source of power and ruler legitimization within the Shang state (Flad 404-406).

Regardless of the importance of these bones in Shang society, oracle bones were discarded after use in large pits, signifying that they carried transient importance and were not meant to be permanent records. Bones could be used multiple times before discarding if space allowed, indicating that preserving bones after readings was not important (Sinopoli Nov 7 2013). The disposal of bones in pits also indicates the transient significance of these bones, as the data they recorded

and the answers they provided became unimportant after reading and were most likely never again read after disposal.

In sum, oracle bones were used in the Late Shang period as a form of divination using bones (usually turtle or cattle). Their practice was limited to elites through specialized pre-treatment processes, material access, and knowledge required for creating and reading these bones. Oracle bones provide a record of the concerns and functions of the Shang Dynasty administration, but were most likely not used as permanent records within Shang society itself. In addition, through monopolization of oracle bone technology, rulers were able to control specialized knowledge within society, establish their claim to higher societal status, and legitimize their right to rule.

Both cuneiform tablets and oracle bones were transient forms of record-keeping and were restricted to elite classes, but differed in focus and use. Cuneiform tablets were unfired and therefore at a high risk of degradation, while oracle bones were discarded in large pits. This indicates that these objects were intended for use over a very short amount of time, rather than to be used over long periods of time as permanent records. The reading and writing of cuneiform was restricted to scribes in the employ of elites, and Shang elites restricted oracle bone carving and divining to court-employed specialists or to the king himself. This restricted access to, and utilization of, record-keeping in both societies to the elite classes. However, the focus of these forms of record-keeping differ—Mesopotamian cuneiform tablets record current economic transactions, while Shang oracle bones “record” and predict future events. The focus of Mesopotamian record-keeping is therefore economic and/or administrative; it arose to address concerns in the present. The focus of Shang record-keeping is religious and/or administrative in nature; it arose to address concerns in the future.

This comparison provides insight into each civilization by suggesting different roles of writing in administrative functions, which further points to different methods of administration and administrative strategies in each society. Cuneiform writing was limited primarily to economic activity, while oracle bones

were limited primarily to predictive or spiritual activity. This suggests different ruling strategies and legitimization of power within each society. In Mesopotamia, power may have been legitimized through effective means of economic administration and control, a means enabled or enhanced by writing. Rulers of the Shang dynasty, however, used specialized and controlled knowledge of the future to legitimize their power as ultimate authorities and decision-makers, a process which was also enabled by writing.

This cross-civilization comparison allows archaeologists to reason that writing arises naturally in early societies to fill needs in administrative technologies, and is usually limited to use by elite or ruling classes. However, the form that writing takes within individual societies is dependent upon effective administrative and legitimization strategies based upon the culture or ruling class in which this writing is found. For example, in ancient Mesopotamia, writing arose to enhance economic activity which was an effective legitimization tactic. However, this tactic may not have been as successful in Shang society, where economic expertise may not have been a legitimate claim to rule, but an ability to bring order to the future may have legitimized authority instead. This may point to cultural values of the governed, with economy and present activity the focus of Mesopotamian society and mysticism and future activity of higher importance within Shang society. While record-keeping evidence alone can neither confirm nor deny these cultural focuses independently, they may point to these cultural values when considered in the context of other archaeological evidence.

Basu and Waymire argue in their article “Recordkeeping and Human Evolution” that this may result because humans have a finite memory capacity. Creating physical, external records reduces the mental capacity required in administrative decision making and information processing, which frees mental resources to address and consider other issues. With decreased memory load and increased free mental capacity, leaders in human societies are able to focus their attention on creating innovations and effective administrative decision-making (Basu and Waymire 223). This makes sense in the context of Mesopotamian cuneiform tablets—when

partners in economic transactions have a physical representation of the transaction, they no longer need to remember the details of the exchange. This allows for larger transactions (because these large numbers no longer need to be remembered) as well as more transactions (because the particulars of individual transactions can be recorded on tablets rather than in memory). If access to this technology is limited to an elite class, it allows a single class to rise to economic dominance and potential political dominance as well.

This theory is more difficult to apply to oracle tablets in the Shang Dynasty, however many aspects of the theory make sense in the context of this society as well. While writing down questions concerning the future does not provide an accurate record of economic transactions, it may serve to unburden memory load by clarifying the future, stream-lining decision-making, and thereby freeing mental capacity for more decision-making and innovation. When Shang rulers are able to write down questions regarding the future and receive information pertaining to these questions, they are able to make decisions more efficiently based on the information they receive. This frees their memory load and allows them to make more informed decisions using less mental capacity (than would be required to weigh various possible outcomes to reach a decision, for example) in a shorter amount of time. When they are able to make efficient decisions in a timely manner, they are then able to turn their attentions to areas of cultural innovation and administration.

While merely a theory, this explanation makes sense in the context of Mesopotamian and Shang societies. It offers an explanation as to why writing or forms of record-keeping coincide with the emergence and advancement of complexity and innovation within society, as well as an explanation of why limiting writing technology to a small set of people allows for social stratification and inequality (Flad 217). It helps to explain why, although writing took different trajectories in these two societies (economic in Mesopotamia, decision-making in the Shang dynasty), it ultimately arose to make administrative and decision making tasks more efficient.

In sum, cuneiform tablets and oracle bones are both writing technologies that emerged in early civilizations to fill a need in society. Cuneiform tablets consisted of unfired clay tablets inscribed by a wedge-shaped reed stylus, and were used to record impermanent data, such as economic transactions, letters, administrative orders, etc. It arose with the formation of a Mesopotamian “oikos” economy as a means of communication and transaction verification between various estates and cities, and was often restricted to use by kings, temples, or estate owners through the employ of specialized scribes. Oracle bones also recorded data of temporary importance in the Chinese Late Shang period, and consisted of animal bones inscribed, fired, and read by specialized diviners or rulers to foretell the future. The development of standardized pre-treatment practices for oracle bone creation allowed for oracle bone use to be limited to elites, and so oracle bones today provide a record of the concerns of the Shang elite. As the sole means of accessing knowledge about the future, access to oracle bone technology and knowledge was a strong source of power and legitimization for Shang kings.

A comparison of these technologies shows that both recorded transient data and were restricted to use by elites, but the trajectory these technologies took was dependent upon the society in which they arose. Cuneiform tablets are economic in nature and focus on the present while oracle bones are spiritual or predictive in nature and focus on the future, pointing to a difference in Mesopotamian and Shang cultural values as well as administrative strategies. This comparison allows archaeologists to infer that, in ancient civilizations, writing arises to fill a need within administrative technologies, however the path that writing forms take is dependent upon the society in which it arises. When writing emerges, it is used to promote social stratification through exclusivity, an effect which may be explained by positive psychological effects in record-keeping for administrative processes and decision making.

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Winning Essays

Granader Prize for Excellence in Upper-Level Writing (humanities)

Women, Family Policy, and Consumption in Cold War Germany

Rebecca Bonner

*From History 496, Germany in the Cold War Era
(nominated by Rita Chin)*

Rebecca Bonner's essay is the best undergraduate paper I have received in a decade of teaching at UM. Her prose is crystalline and demonstrates an absolute command of both language and ideas. This paper analyzes women's social policy in East and West Germany. It argues that despite the two states' divergent ideological positions, they ultimately took similar political and social approaches regarding women: domestic work remained gendered and social policy remained preoccupied with a vision of women's "appropriate work" that often failed to correspond to women's reality. Bonner's argument is very sophisticated; it far exceeds typical undergraduate command of a body of knowledge and even rivals the work of many graduate students. Her paper demonstrates a remarkable ability to synthesize scholarly arguments and place them in the historical context of Cold War Germany.

Rita Chin

Women, family policy, and consumption in Cold War Germany

The “family” holds different meanings in different moments. In the German Democratic Republic (GDR or East Germany) and its environment of socialism, “family” initially often conveyed a broad concept of socialist collectivity in which shared responsibility and community played an integral role. Later, especially in the late 1960s and 1970s, the meaning of “family” would narrow towards a private nuclear unit, a conception more like the Federal Republic of Germany’s (FRG or West Germany) image of family. Despite its evolving nature, the “family” remained a key political and social concern in both Germanys through the decades as Germans struggled to reconstruct a sense of self and national identity in the wake of Nazism and occupation. Family became critical in this reconstruction as a repository of national values and of German identity, especially in the FRG where the dominant political parties lacked a clear unifying ideology like socialism. As the FRG and the GDR developed, this preoccupation with the condition of the family translated and evolved into a preoccupation with women and their role in society and the workforce. From the 1950s to 1970s, the governments of both the FRG and the GDR developed specific social and family policies that targeted women and their work. West German capitalism and East German socialism influenced these gendered policies to different degrees, but state ideology and policy played a large role in determining women’s experiences in this period.

The Federal Republic of Germany tried to separate gender roles through social and family policy, with men as breadwinners and women as homemakers, but did not make accommodations for the many women who, regardless of policy, participated in the paid workforce for much of their lives. In contrast, the German Democratic Republic tried to erase gender-based difference in their society but failed to do so with domestic work. East German policies placed a double burden on women as workers and homemakers, while the FRG largely confined women to the home. Both ignored the complex realities of women’s working lives. Ultimately, the GDR and FRG’s divergent ideological positions produced similar political

and social patterns in which domestic work remained gendered and social policy reflected a state preoccupation with women's appropriate work that often did not correspond to women's reality.

In the GDR, the socialist state government pledged a society based in equality and without gender discrimination, but their policies placed a double burden on women who often worked both for wages and at home. Both constitutions of the German Democratic Republic encode legal equality: the 1949 constitution Article 7 and the 1968 constitution Article 38 (Constitution of GDR (1949) art. VIII, sec. 1; Constitution of GDR (1968) art. XXXVIII). Both documents assured the equality of the sexes, and the ideological position of the state supported such egalitarianism. As part of its efforts to equalize society and shape it into an ideal form, the governing East German Socialist Union Party (SED) instituted family policies aimed at raising the birthrate and bringing women into the workforce. These policies developed in the mid 1960s partly as a result of the country's increasing normalization and rising prosperity. The SED implemented family assistance programs such as childcare, healthcare, education, communal activities, and other support services to ease childbearing and child rearing for families, especially for women. Taking over traditional family functions like education and child raising, the state freed women from certain time commitments and created an auxiliary effect of liberalizing marriages. In this context, marriage increasingly became about love, pleasure, comfort, and support, which made legal unions more flexible and divorces easier. Since women filed most claims after 1958, the liberality of divorces benefited them and allowed woman a substantial degree of personal and social freedom (Betts 100). Feminist arguments for equal rights on the basis of the constitution alone gained ground in this period, contributing to the development of a more liberal social climate that recognized gender equality beyond ideology, especially in the 1960s and 1970s.

Additionally, the SED enjoyed marked success in integrating women into the workforce, eventually realizing effective equality in workplace gender ratios. As scholars Sorenson and Trappe point out, "the GDR had achieved virtual equality

in terms of years of schooling, training, and labor force experience by the time the GDR dissolved” (Sorenson 398). While women continued to experience pay disparity and disadvantaged access to powerful positions and particular fields (like the *Stasi*), their position in the workforce generally expanded and strengthened due to the SED’s policies (Harsch 131). The state’s success in population growth and labor integration, however, left other aspects of social policy ignored. SED social policy favored support of families (even single-parent families) against single women and other disadvantaged groups like the elderly. These policies also did not address underlying gender norms that had originally created labor segregation and many social issues.

While the SED dealt with the workforce and population growth-related concerns, it maintained the preexisting gender norm of women’s responsibility for domestic life as caregivers and housekeepers. As Mocker argues, “SED’s women’s policy . . . neither contributed to the economic independence and equality of women nor stabilized the family” (Schmidt 91). Responsible in most cases for performing double shifts as wage earner and domestic worker, women struggled to manage. The imbalance of work created unequal labor distribution and unfairly disadvantaged women workers, in violation of the ideological and legal position set by both the 1949 and 1968 constitutions. In socializing the country, the SED had upended production and class relations but left individual consumption and private gender relations as was, which “impinged on women more directly and in more ways than on men” (Harsch 5). The scene in Heiner Carow’s popular 1973 film *Die Legende von Paul and Paula* in which Paula returns from an exhausting day of work to her apartment only to laboriously haul buckets of coal up flights of stairs to heat her home captures some of the physical and emotional burden such double work placed on East German women. While Paula was a working class single mother, her struggles to manage were not unusual. Among other duties, women were responsible for obtaining and preparing food, hauling in fuel, cleaning and decorating their living spaces, as well as obtaining and maintaining clothes and linens (Harsch 167). Supplying the home in this way preoccupied

many women, since the inefficient and often poorly coordinated socialist economy heavily regulated goods and frequently made obtaining domestic goods like food and fuel very difficult and time-consuming (Crew 18). Consumption was primarily a female challenge, since women were charged with supplying the home. It was mothers and wives, therefore, who had to deal with queues, quotas, and excessive hassle to obtain the goods they needed. The GDR's systemic consumption issues disproportionately affected women, which in some cases forced the SED to focus policy on women's issues, such as consumer goods and universal childcare (Harsch 168, 10). More often, however, gendered domesticity combined with the SED's inability to effectively provide consumer goods to ultimately burden GDR women with hugely time- and energy-consuming home labor. While West German women, also responsible for domestic work, often found ways to express themselves and execute a type of consumer and aesthetic power through their role in the capitalist economy, East German women were limited by the socialist system. "The managing of scarcity," observes David Crew, "which continued to constitute a large part of women's domestic labor in East Germany had little in common with the cultural production of aesthetic lifestyles that Erica Carter sees as West German women's emerging new domestic role in the 1960s" (Crew 10). While capitalism continued to influence the GDR, especially in terms of desire and consumption patterns, it did not eradicate the socialist systems of production that determined how one bought goods. For women, this significantly detracted from their personal productivity and, ultimately, the productivity of the nation.

Across the border, public perception and social policy in the Federal Republic narrowly confined West German women's acceptable occupations to domestic labor and childrearing while failing to legally or politically reward such work. The FRG government, dominated by the allied Christian Democratic Union and Christian Social Union (CDU and CSU, respectively; abbreviated together to CDU), refused to recognize the many women who, despite norms and policy, participated constructively in the workforce during and after the period of economic recovery (the "economic miracle," or "*Wirtschaftswunder*"). Like the GDR,

the Federal Republic's founding legislation supports universal gender equality. The 1949 Basic Law (*Grundgesetz*), the legal substructure of the FRG, explicitly ensures that "men and women shall have equal rights," and the government must abolish all systems and practices that contravene such rights (Basic Law art III, sec. 1). However, such equality did not become law without dispute. In the shadow of Nazism and defeat, family and children became central focuses of national and social rehabilitation. Fierce debate shadowed the makings of the Basic Law, and it was women's strength in the traditionally "female" realm of family and homemaking that constituted the strongest claim for gender equality (Schissler 363).

The dominant perception in the FRG among both the general populace and the government held that women had much more important work to do than wage work; they needed to rehabilitate the family and return the country to "normality" after the war. This "normalization project," as historian Hanna Schissler has called it, preoccupied social reconstruction efforts in the 1950s and produced normatively prescribed gender ideals whose artificiality became masked by the claim of "normality" (Schissler 366). As the country rebuilt, women faced substantial ideological pressure to return to domestic sphere. Political and social discourse often charged that women's ideas and efforts not oriented around the family were "materialistic" and "egotistical" (McCormick 292). The government reflected and perpetuated such perceptions. Labor-exchange officials tasked with differentiating between the legitimately and illegitimately unemployed identified a woman as unemployed only if she had no family ties. In one scholar's words, "a woman with family obligations could not be unemployed; she already had one full-time job...of unpaid housewifery and motherhood, not one of work for wages" (Moeller, *Protecting* 149-50). Popular magazines and books reflected these concerns with women's acceptable work, idealizing the domestic woman as loving mother and wife and gifting her with all the modern material advantages of German's economic progress.

Additionally, comparisons with the "other" Germany to the east encouraged domestic, patriarchal interpretations of womanhood. For many in West

Germany, communism signified neglected children and women forced to toil at heavy labor designed for men. Franz-Josef Würmeling, Chancellor Adenauer's family minister, established a position of "respecting" women's choices in an attempt to distinguish and elevate their policies compared to the SED's, which forced labor equality (Schissler 364). CDU discourse accused the SED of *Gleichmacherei*, the "arbitrary leveling of differences between man and woman," since such gender restructuring appeared in the West to be a basic assault on both social order and "divinely created human nature" (Weitz 226). While easterners saw labor distribution as necessary and a sign of social progress, westerners considered it scandalous and a threat to social order (Wierling 115). The CDU, in response, deliberately attempted to distinguish itself from communist groups (like the SED) by cultivating a "conservative tenor," of which traditional gender roles played a substantial part (Weitz 219). For those in the FRG, the East acted as a potent counter image, a warning against too radically and profoundly changing gender norms.

Social policy in the Federal Republic reflected many of these popular perceptions of women's acceptable work in the CDU's emphasis on the family and their neglect of individual women, particularly those outside the gender norm. Above all, FRG social policy emphasized that women had value as mothers and housekeepers, not as paid workers. As Würmeling announced in 1959, "the actions of housewives and mothers in the family are of unparalleled greater importance for the common good than is the economic usefulness of factory or office work" (Schissler 364). In this, as previously discussed, the CDU reflected as much as shaped public opinion (Weitz 227). Social policy in the FRG tended to focus on families, rather than on women, because the CDU viewed the family to be the key unit of interest; women were important predominantly in terms of their relation to the family. In 1957, the Adenauer government pushed through a major overhaul of family law that had been delayed from 1949 due to conflict over the family's protection and rights versus individual women's protection and rights. In the end, gender segregation of breadwinner-husband and housewife-mother became installed in the legal code. Succeeding family policy displayed this fundamental social

dichotomy, as with welfare payments to families to support children (*Kindergeld*). In the public debate over *Kindergeld*, payment directly to women was hardly discussed, despite the dominant belief that women's primary occupation was to bear and raise children (Moeller, *Reconstructing* 126). The ultimate policy, which delivered payments to male breadwinners of larger families, utterly failed to reflect the work West German women invested in their domestic work, let alone the struggles experienced by the many women-headed families in West Germany. The family wage institutionalized gender norms, assuring that men alone were responsible to provide for the family, despite the extensive and exhausting unpaid labor of West German women (Weitz 226).

For women who did not fit the accepted public vision of womanhood, such policies not only neglected but also discouraged them from fully participating in the social, economic, and political life of the FRG. Despite the rhetoric of domesticity, labor force gender ratios in West Germany returned to the prewar status quo within two decades of armistice (Moeller, *Protecting* 150). For many women, therefore, participation in the labor force was a lifelong state, not a contingency of hard times (Moeller, *Reconstructing* 128). Working women nevertheless faced severe barriers in terms of employment and state support. Würmeling, as general policy, offered no state aid for working women, even though by 1961 48.9% of women aged 15-60 were engaged in paid employment (Schissler 364; Moeller, *Protecting* 150). The labor market itself remained deeply segregated (more so than even on traditional "collar" lines), partly due to lack of state interest in labor equality. While the general number of women in the labor force rose, their distribution across industry varied greatly. Perceptions of women's acceptable work at home made it difficult for women to find employment in family industries like agriculture, so they moved to trade, manufacturing, and other more nontraditional fields (Wierling 113). So, though the CDU's policies did not ultimately prevent women from seeking employment outside the home, it determined where they could find work and the compromises they would have to make in other aspects of their life, given the dearth of state support in areas like child care (Schissler 367).

Single mothers and women-headed households also experienced substantial government neglect, since they were viewed as abnormal by the state and expected to vanish once gender ratios returned to normal (Moeller, *Reconstructing* 123). The opposite occurred, with the number of women-headed households jumping enormously from 1949-1955 and single women remaining a distinct demographic beyond the immediate postwar moment (Moeller, *Reconstructing* 130). Single women, a product of wartime demographic imbalance, could not possibly fit within the social ideal of “normal;” population ratios made such a life “objectively unattainable” (Schissler 370). Nevertheless, both general society and state policy severely marginalized such working women because they could not fit within the accepted vision of domesticity. As Schissler has argued, this normative state prescription and neglect produced deep conflict and dissatisfaction among West German women. They could neither be good mothers and maintain adult status, since such status was defined by and associated with the male life course of employment and family provision, nor engage in the workforce and secure social acceptance. The gender prescriptions accepted and propagated by the CDU in West Germany disempowered and disenfranchised women either way (Schissler 368).

Women in West Germany were never entirely without agency, however; they exercised power within the narrow confines of domesticity through the capitalist consumer economy, in which women had a determining influence. Unlike the SED, which actively discouraged consumerism (though it played a large role in women’s lives nevertheless), the CDU encouraged consumer activity as a key factor in the country’s economic recovery. In the postwar years, the economic miracle (*Wirtschaftswunder*) became a core part of the FRG’s national identity, and women existed at the center of the consumer economy since they managed domestic purchase and use of goods. As Erica Carter has argued, consumerism, the heart of the social market economy, became the very “source of core values for the nation” (Carter 5). As a result, women played a critical role as public consumers who contributed to the economic and cultural regeneration of the Federal Republic. Though women’s decisions around domestic life are often considered

private acts limited to the home, they exerted influence in the very public realm of the FRG's social market economy. In this way, women could both return home, as was ideologically encouraged, and also contribute to the economic recovery of the nation. Ultimately, however, this emphasis on women as domestic consumers still contributed to a hierarchical and gendered division of labor. Consumerism had a complex role in both restricting West German women by encouraging gendered domesticity and empowering them by creating an avenue through which women could exert substantial influence on the economic (and therefore political) development of the nation.

Ultimately, both the socialist Democratic Republic and the capitalist Federal Republic perpetuated norms of gendered domesticity, despite ideological claims to equality, by focusing narrowly on certain aspects of women's lives and refusing to accommodate needs and realities that did not fit their particular vision. In the GDR, the SED subordinated both the political and social to a production-based understanding of political economy and social transformation (Harsch 2). As a result, West German women experienced a state that placed heavy emphasis on paid labor but largely neglected domestic needs and the material and emotional labor that women contributed to that field. Though SED leaders achieved remarkable success in integrating women into the workforce, they failed almost entirely to balance the domestic world due to their ideological focus on production and its ability to create equality. Despite its ubiquity, the reality of overworked, poorly compensated, and underrepresented women failed to catch state attention because employment and production remained of primary interest over domestic structures and consumption. The failures of socialism and collectivization, therefore, which heavily affected consumerism and domestic life, continued to disproportionately affect East German women until the dissolution of the GDR five decades later. The FRG, in turn, focused its attention and resources entirely on women as laborers in the home and completely failed to incorporate working women and single mothers into their vision of West German society. CDU policies that actively discriminated against working women and promoted their place in

the home complemented a public desire to return to “normalcy” and traditional conceptions of the home as a center of feminine comfort and warmth. The CDU demonstrated in policies like the deliberate lack of government aid for working women and *Kindergeld* that women belonged in the home and their role was not to earn a wage but to be a mother and wife. As a result, the CDU failed to support a substantial proportion of its female citizens who, despite these norms, continued to work and financially support themselves and their families. The SED and the CDU held different visions of German society and German womanhood, and their ideologies and policies reflect this divergence. In the end, however, both ignored how the public and private met and came into conflict in women’s lives. The fracture between public and private, production and consumption, acceptable and unacceptable work that both societies generated became attached to women and their lives. Ultimately both Germans, whether headed by the SED or the CDU, failed to recognize that their policies perpetuated a system of gendered social inequity that contravened both nations’ foundational ideals of prosperity, contentment, and peace.

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Camel Songs: A Comparison of the Tuareg and the Bedouin

James Nadel

*From History 496, Nomads: the Nomadic Factor in History
(nominated by Ellen Poteet)*

When I spoke with a colleague in Anthropology who has worked with the Bedouin, to ask if he had suggestions for a research project a student of mine was pursuing on the music of the Bedouin, he commented that there had been surprisingly little work done on the subject and no one that he knew of had tried to assess the relation between music and the social organization and means of livelihood—pastoral nomadism—of the Bedouin. That is one indication of the creative initiative taken by Jamie in his research paper on the camel songs of the Tuareg and the Bedouin. He identified the category of camel songs and by undertaking a comparative analysis of the camel songs of the Tuareg and the Bedouin, he was able to demonstrate how music communicates cultural and social distinctions between these two camel-herding peoples. He also offered compelling insights on the role of music as a means of communication both within these societies and between pastoral peoples and the “outside world”. The paper was carefully researched (Jamie even explored the Stearns Music Collection to try to find instruments that were equatable with those used by the nomadic groups he focused on) and, without being able to do fieldwork, Jamie’s conclusions are a rich basis for ongoing study. Jamie writes with purposeful clarity and a nuanced sensitivity to his sources that is notable not just for an undergraduate but for any academic writer. His paper deserves a much wider audience than the instructor and other students of the seminar for which it was written.

Ellen Poteet

Camel Songs: A Comparison of the Tuareg and the Bedouin

Both the Tuareg and the Bedouin are nomadic groups that herd, ride, praise and fight for camels, the iconic animal of the desert. To commemorate these animals, they sing songs for and about them. Scholars have researched these different songs extensively, but the musical traditions of these two camel pastoralist peoples have never been compared before. This paper places the camel songs of the Tuareg next to those of the Bedouin in order to discover how this musical type functions across the two cultures, both of which share a way of life focused on the desert and the camel. In this examination, music acts as a common language; one that links these two peoples, not however exclusively in terms of pastoral nomadism. The music reflects both the journeys of the nomads and their camels. Analyzing this music, therefore, offers insights into nomadic life and presents new opportunities for future comparisons.

The Tuareg

The term Tuareg refers to the various nomadic tribes of camel and goat-herders that live in northern Africa, around the Sahara desert regions of the Ahaggar and Air mountain ranges. The Tuareg speak a specific Berber dialect called Tamashaq.¹ As with most attempts to define a nomadic group, this definition ignores important characteristics of the Tuareg life-style. The Tuareg traditionally lived in a highly organized social hierarchy that separated people into four major categories: nobles (ihaggaren), vassals (imghad, who are also free men and women), slaves and an outlier group of artisans (inaden), or blacksmiths.²

In the past, the nobles controlled the camels, using them to travel, to participate in trade and to engage in raids and other warfare.³ The male warriors of this noble section continue to wear an iconic veil to cover the majority of their

1 Caroline Card, *Tuareg Music and Social Identity* (Bloomington, IN: Indiana University, 1982), 14.

2 André Bourgeot, "The Twareg Women of Ahaggar and the Creation of Value," *Ethnos* 52.1-2 (Stockholm: Routledge, 1987), 1; Card, 19.

3 Johannes Nicoliason and Ida Nicolaisen, *The Pastoral Tuareg: Ecology and Society* (Copenhagen: Rhodes International Science and Art Publishers, 1997), 398.

faces, leaving only their eyes visible. Meanwhile, vassals herded goats, which are much more reliable sources of milk than camels. A genealogical contract, known as the *temazlayt*, obligated each caste to perform a specific social role and thus bound the two together throughout the generations. The noble warrior class protected, while the vassals produced.⁴ Over the last century, since the development of more centralized governments in northern Africa, the strict separation of these castes has diminished. The wealth of the noble class has dissolved as more and more vassals achieve social mobility by purchasing camels. The issuance of the *temazlayt* has ceased. And yet, the old social model, which focused camels in the hands of the nobles, still appears in Tuareg culture and specifically in their music.

One common type of Tuareg music is the *tende*. The *tende* is a percussive drum played by groups of Tuareg women at large ceremonies, such as weddings, festivals and even spiritual curing rituals.⁵ The word also identifies the music, normally singing and clapping, that accompanies the drum's timbre. That being said, *tende* music varies greatly depending on the occurrence it commemorates. The music and the event are so linked that the word *tende* also refers to the communal activity itself. For instance, the *tende* music played at curing rituals goes by the name "*tende-n-goumaten*," as opposed to the "*tende-n-emnes*" of the camel festivals. Both women and blacksmith artisans assemble the *tende* drums out of items normally used in food preparation: the mortar and pestle. A damp goatskin is pulled over the open end of the mortar and around two pestles to ensure the surface is "taut".⁶ Players can alter the pitch of the drum in two ways. First, they can add pressure to the pestles, either with bricks or their own weight, to increase the tension on the goatskin. Second, they can moisten the goatskin itself to manipulate its rigidity.⁷ Due to the physically demanding process of constructing the *tende* and the common-place nature of its constituent parts, most Tuareg associate it with vassal and lower-caste women. This may explain why some Tuareg,

⁴ Jeremy Keenan, *The Tuareg: People of Ahaggar* (London: Allen Lane, 1977), 44.

⁵ Card, 113.

⁶ Card, 115.

⁷ Card, 115.

especially those of the Kel Ewey tribe, call *tende* “the music of the earth”.⁸

This connotation has a possible historical explanation that directly ties it to camels. *Tende* is a relatively new type of music, first noticed by scholars in the 1920s, that migrated to Algeria from the northwest region of Mali.⁹ Geoffrey and Finola Holiday, the ethnomusicologists who studied the Tuareg and recorded their songs for the Smithsonian Folkways series, have argued that *tende* music merged with Tuareg culture and replaced a smaller percussive instrument played by noble women, the *tobol* (Arabic) or *ganga* (Huasa).¹⁰ Under the traditional social hierarchy, noble women played the *tobol* at camel ceremonies. *Tende* music entered Tuareg musical culture at the same time that vassals were accruing greater amounts of wealth due to the effects of French colonization in the 1850s.¹¹ As these vassals exchanged this wealth for camels, they inserted themselves into these same camel ceremonies, which had previously been exclusively dominated by nobles. Vassal women took over the role of creating the music from the noble women. In turn, the *tende* supplanted the *tobol*, even as the *tobol* continued to be associated with the noble women who once played it.¹² Thus, a shift in camel owning rights coincided with a change in musical performance and its social context. The symbolic wealth of camels allowed the vassals to enter a previously exclusive musical event, undermining noble privilege. And yet at the same time, the musical gathering of the camel *tende* reiterates the traditional social structure of the Tuareg. The vassals play the definitively non-noble *tende* (as opposed to the noble *tobol*) and thus representationally indicate their social inferiority. Within the *tende*, and within the Tuareg musical tradition, these contradictions complement one another. A close examination of the camel *tende* will elucidate this phenomenon.

The *tende-n-emnes*, or the camel *tende*, are common festivals in Tuareg

8 Susan J. Rasmussen, *Spirit Possession and Personhood among the Kel Ewey Tuareg* (Cambridge: University of Cambridge Press, 1995), 126. This designation places *tende* in contrast with the music of the noble single-stringed instrument, the *anzad*, which supposedly emits paradisiacal music.

9 Card, 125.

10 Card, 129.

11 Card, 36; The French regimes brought new trade routes. The vassals capitalized on these routes for economic gain, while the nobles continued to use the camels as symbolic wealth. Furthermore, the French abolished slavery, which further upset the Tuareg social hierarchy.

12 Card, 130.

life. They also go by the name “Ilougan,” whose literal translation is “fantasy.”¹³ The closest analogue in the Western world would be the tournaments of medieval Europe. Both events recreate the actions of warfare, valorizing camel riding and the achievement of honor. A typical camel “fantasy” revolves around male camel riders, who alternately parade and race their mounts.¹⁴ Meanwhile, vassal women sit in a circle in between the lines of camels. Some beat on their *tende* drums, while others sing and clap.¹⁵ The music is faster than most other types of *tendes*. The “ternary subdivisions” of the music’s rhythm actually attempt to imitate the back and forth gait of the camel and some participants have described the parading camels as “dancing” to the *tende* music.¹⁶ This rhythm tries to key in on the unusual step pattern of the camel, which simultaneously moves the two legs on the same side of its body.¹⁷ According to Holliday, the camel riders line up on opposite ends of the circle. The riders spur their camels back and forth across the campsite, every rotation inching closer and closer to the *tende* circle. To climax this scene, a camel rider grabs a woman’s scarf from her head and rides away with it. The other riders follow in pursuit in order to return the scarf to its owner in the *tende* circle, thereby meriting honor for their chivalry.¹⁸ These events can last for hours. The lyrics of the songs themselves often praise the camels and their riders, but also treat dramatic and evocative love affairs.¹⁹

To understand the full social implications of the camel *tende*, one must also observe the *tende-n-goumaten* (curing ritual *tende*). This *tende* allows for both the divergence from and adherence to the Tuareg social hierarchy, and thus acts as a theoretical basis for similar conclusions about the camel *tende*. As a song of festivals, the *tende* “evokes... free sociability.”²⁰ The ritual mixes the old and the

13 Geoffrey Holiday and Finola Holiday, “Tuareg Music of the Southern Sahara” (New York: Smithsonian Ethnic Folkways Library, 1960), 6.

14 Card, 132.

15 Rasmussen, 127.

16 Card, 132.

17 This is my own guess at the similarity between the rhythm and the camel’s gait. Card gives no reason for this similarity.

18 Holiday, 6.

19 Card, 134.

20 Rasmussen, 119.

young, as well as the noble and the lower-classed. Simultaneously, different playing styles are easily associated with the different castes. Upon listening to an example recording, nobles instantly categorized it as “slave music,” due to its perceived lack of restraint.²¹ The *tende* ceremony strictly identifies certain people with certain castes, while allowing those people to interact with one another.²²

Although it only incorporates vassals and nobles (and sometimes artisans), the camel *tende* also tests and confirms the boundaries of Tuareg social life. Designating the vassal women as the players of the mortar-made *tende* associates them with domestic labor. At the same time, the noble men replicate the excitement of war with their camels and, in turn, reclaim their honorable heritage. The actions of the festival even physically demonstrate the social hierarchy. The vassal women playing the *tende* music are on the ground, while the noble camel riders tower over them. The nobles surround the vassals, as if protecting them from an outside danger. On the other hand, the event provides a setting for the mixing of social classes. Flirtatious behavior between traditionally endogamous castes defines the camel race and the climax of the event. The singers share texts that explore intimate and sexual topics right before their social superiors. The self-restraint, normally invoked to keep the social classes separated, dissipates. The *tende* itself allows the women to enter a traditionally noble event, while it also defines them as vassals. By the same token, the camel-like music includes the vassal women, while the camels themselves remind all involved of the inherent separations among the Tuareg. The camel is both the animal that binds them together as Tuareg and the symbolic wealth that divides them into social classes. The conflation of these two contradictory usages, in the form of the camel *tende*, reasserts the markers of social identity in this section of Tuareg society. In fact, these songs continue to affirm an integral piece of Tuareg identity in the face of urbanization. As more Tuareg move to the city, the camel *tende* has moved away from the traditional camel fantasy in the open desert to a resurrected one in their new environment.²³ The camel *tende* allows the Tuareg

21 Rasmussen, 122.

22 Rasmussen, 122.

23 Card, 189.

to explore and reiterate their social characters. In the words of anthropologist Clifford Geertz, "...it is a story they tell themselves about themselves."²⁴

The Bedouin

The Bedouin inhabit the desert of the Arabian Peninsula, which is currently divided among the countries of Yemen, Oman, Jordan, Iraq and Saudi Arabia. Primarily, like the Tuareg, they herd camels in search of pasture. Before the advent of the automobile, travel by camel was the only way to move through the desert. In fact, the Bedouin controlled and made money from these movements for thousands of years. Only they could survive the harsh desert environment. The severity of the desert also necessitates deeds of hospitality, offered to all weary Bedouin travelers. Acts of generosity, which normally manifest themselves in the form of sharing food or holding coffee ceremonies, distinguish the Bedouin people and garner great respect. Camels play an integral role in this travel and survival. They store energy in the form of fat in their large humps and can travel without sustenance for months. The camel is so important to Bedouin life that it is considered "the gift of Allah" (‘ata llah).²⁵ Specific types of camels even come to represent specific tribes of Bedouin.²⁶ The camel, which was an ecological necessity, continues to be a symbol of tribal wealth, nobility and honor. Augmenting a camel herd through raiding was a common and necessary aspect of desert life. In addition to acting as an opportunity to earn honor, these raids served to regulate camel herds which are vulnerable to decimating droughts.²⁷

The music of the Bedouin is inseparable from the poetic tradition of this camel people. Unlike the Tuareg, only men can recite these poems and their musical iterations. Most songs in the Bedouin culture are poems sung aloud or simply recited with the *rebaba* in the background. The Bedouin of Jordan sing more poems than they recite.²⁸ In many Bedouin tribes, poetry performance

24 Clifford Geertz, "Deep Play: Notes on the Balinese Cockfight," in *The Interpretation of Cultures: Selected Essays* (New York: Basic Books, 1973), 448.

25 Saad Abdullah Sawayan, *Nabati Poetry: The Oral Poetry of Arabia* (Los Angeles: UC Press, 1985), 33.
26 Sawayan, 34.

27 Louise E. Sweet, "Camel Raiding of North Arabian Bedouin: A Mechanism of Ecological Adaptation," *American Anthropologist* 67. 5 (Wiley-Blackwell, 1965), 1132-33.

28 John A. Shoup, *Culture and Customs of Jordan* (Westport, CT: Greenwood Press, 2007), 47.

follows a specific procedure. First, the poet describes the plot and the allusions of the poem for those unfamiliar with it. Then, the poet recites the poem without singing. Finally, a small portion of the original poem is sung aloud.²⁹ Most commonly, these melodies are transferred onto the Nabati poems; that is poems constructed in vernacular Arabic as opposed to classical Arabic. The use of music helps the poet to construct the consistent meter and rhyme scheme necessary for a great Nabati poem, as each line of the poem must follow an identical pattern. The poets even use the same word, *targ*, to refer to both the meter of a poem and the rhythm of a song. Furthermore, the Nabati poet is often found making wild, and yet musical, noises during the composition process.³⁰

The poet or singer accompanies himself on the *rebaba*, a traditional Bedouin and Islamic instrument that has spread throughout the Islamic world.³¹ It is so associated with the act of poetry that observers often refer to it as *rabab al-sha'ir*, or the “poet’s *rebaba*.”³² This identification of an instrument with its social usage resembles the double meaning of *tende*, both as an instrument and a performance. In its Bedouin form, the *rebaba* is a single stringed instrument, played like the violin, that uses a rectangular box covered with goatskin to make a resonator.³³ The string of the bow and the instrument are made with the hair of a horse’s tail. The strumming of the *rebaba* can seem monotonous at times, but it is this quality that makes it so perfect to accompany a Bedouin poem. Its “low tones” create a sonorous background that undulates slightly.³⁴ Some players have even compared the sound of the *rebaba* to the rising and falling sand dunes of the Arabian Desert.³⁵ Although the *rebaba* has a limited range due to its single string, players utilize several musical modes or styles when playing.³⁶ One of the most

29 AJ Racy, “Heroes, Lovers, and Poet-Singers: The Bedouin Ethos in Music of the Arab Near-East,” *The Journal of American Folklore* 109.434 (American Folklore Society, 1996), 411.

30 Sowayan, 99.

31 In fact, the Stearns Collection of Antique Musical instruments at the University of Michigan has examples varying from Indonesian to Spanish rebabas.

32 Shoup, 111.

33 Sowayan, 140.

34 Shoup, 111.

35 Moshe Morad, “The Bedouin,” BBC Radio; <http://www.bbc.co.uk/programmes/b007z0ld>

36 Morad.

common modes is the *Hjeni*: the camel song.³⁷

The Bedouin camel song was supposedly one of the first types of music to exist in the desert. According to the medieval history *Meadows of Gold and Mines of Gems* by al-Mas'udi (d.956), in pre-Islamic times, a man fell off of his camel and crushed his hand. He screamed out *ya yadah!* (Oh my hand!). The cry held musical quality that fascinated his camel. This anecdote marks the birth of the *huda*, or camel-driver, style of Bedouin music. Just as with the camel *tende* of the Tuareg, the *huda* style is characterized by a “triple-measured rhythm,” that supposedly replicates the movements of the camel itself. Traditionally, the Bedouin camel-drivers believed that this music encouraged their camels to start moving. The *huda* rhythm eventually evolved into the *hjeni* (which means a young, strong camel in Arabic)⁴⁰ style that is used in performances today. The *hjeni* is a solo song, often of a nostalgic quality, accompanied only by the *rebaba*.⁴¹ Alternatively, Bedouin sing the *hjeni* while traveling on camel back, or (in modern times) while in a car or a train.⁴²

Beyond the *hjeni*, camels make constant appearances in Bedouin poetry and therefore in Bedouin music. In addition to starring in many poems camels have a traditional place in the poem's prelude. The prelude to many Nabati poems describes an imaginary journey through the desert (taken by the poet or his subject) to arrive at the performance space with the poem. This description includes detailed admiration for the thoroughbred camel that the poet rides.⁴³ Furthermore, observers compare the seemingly uncontrollable noises made by the composing poet to a “thirsty camel separated from the herd and lost in the empty desert wastes.”⁴⁴ Also, because poetry itself inspires men into honorable actions that enhance the tribe, it is known as the “driving stick” of men.⁴⁵

37 Also known as Hgeni, Hojiani, Hudjaini and Hjini.

38 Amnon Shiloah, *Music in the World of Islam: A Socio-cultural study* (Aldershot: Scolar Press, 1995), 3.

39 Simon Jargy, “Sung Poetry in the Oral Tradition of the Gulf Region and the Arabian Peninsula” *Oral Traditions* 4.1-2 (1989), 178.

40 Amnon Shiloah, “Bedouin Music of Southern Sinai,” (New York: Smithsonian Ethnic Folkways Library, 1978), 3.

41 Shiloah (1978), 3.

42 Sawayan, 141.

43 Sawayan, 163 and 32.

44 Sawayan, 97.

45 Sawayan, 124.

Camel imagery also plays a part in the music of the Bedouin coffee ceremony. The ceremony expresses hospitality to guests, an integral element of Bedouin honor. During this coffee ceremony, a Bedouin crushes the coffee beans with a mortar and pestle. This process actually has a percussive nature and intricate rhythmic qualities. This detail is further explained in H.R.P Dickson's *The Arab of the Desert*, in which he describes his own experience of a coffee ceremony.

“Almost every Bedouin is an expert at pounding coffee, and our host goes about this with a regular musical rhythm, varying the strokes and sound... By now we may have been joined by an expectant crowd of relatives or neighbors who have been attracted by the sweet metallic sounds, admiring the artistry of the performer”⁴⁶

Often, a poet will crush the coffee beans and compose a new poem at the same time. The rhythmic sounds assist him in devising the *misadd*, or the first line of the poem, which will determine the meter and rhyme structure of the rest of the poem. This word comes from the verb *sadd*, which means “to saddle a camel mount.” The rest of the poem relies on the foundation of the first line, just as a traveler through the desert depends on his camel for survival.⁴⁷ This connection highlights the interdependence between the honor earned in warfare and the honor of giving hospitality that the music of the coffee ceremony facilitates. One poem will simultaneously praise a hero's valorous actions in a camel raid and the loud sounds of his coffee-making, which generously welcome travelers from all around the area.⁴⁸

Nevertheless, despite these social settings, the camel songs of the Bedouin connote social isolation. The poet-singer normally performs alone and accompanies himself on the *rebaba*, even during the communal meetings of the coffee ceremonies. The poet does not share the stage. A single voice travels through the *rebaba's* dunes of undulating sound. Similarly, the camel is praised because it

46 H.R.P. Dickson, *The Arab of the Desert*, Ed. Robert Wilson and Zahra Freeth (London: George Allen and Unwin, 1983), 74. An example of this performance is available on the Smithsonian Folkways Bedouin recording.

47 Sawayan, 96.

48 Sawayan, 44.

can both travel for days without help from the outside and avoid making noises that would attract enemy raiders. Thus, isolation enters prominently into the performance of sung poetry in the Bedouin tradition.

This focus on the individual speaks to the main contradiction of these songs and of Bedouin life. They bring the wilderness to the encampment and the encampment to the wilderness. When deep into the desert, the camel driver sings a *hjeni* and thus invokes the sophisticated artistic life of his community. He wards away the perils of movement with visions of the camp. In the same way, the prelude to a poem, recited at a coffee ceremony for instance, invites in the dangers of the desert. The preludes show only a poet and his camel.⁴⁹ The entire wilderness pushes first against this outmatched duo and then into the safety of the tent.⁵⁰ The two seemingly distinct aspects of Bedouin existence seep into and affect one another. This point even comes to life in the poems, which simultaneously praise a man's cunning in battle and generosity in the camp.⁵¹ The camel songs negotiate the place of heroism (represented by venturing into the wilderness) and hospitality (represented by the security of the camp) by bringing them as close as possible to each other without effacing the separation that gives these two poles of Bedouin life their meaning.

Synthesis

This analysis has thus far distinguished the Tuareg and the Bedouin based on their camel songs, and in turn on their understanding of social boundaries. For the Tuareg, those social boundaries are understood in terms of a strict social hierarchy, while in the Bedouin they are understood as the opposition between the camp and the sands. By participating in the camel fantasy, the Tuareg test the boundaries of social relations and ultimately find them once again. The *hjeni*, on the other hand, brings isolation to the forefront. The image of a lone traveler appears in many aspects of its performance. However, in both cases, the camel

49 Sowayan, 163.

50 Sowayan, 31. It is important to note that the shiek's tent, where the coffee ceremony takes place, purposefully stands in the most vulnerable and dangerous spot of the encampment, ensuring that it will take the brunt of a potential raid. Therefore, the dangers of the desert could enter the tent at any time.

51 Sowayan, 45.

song acts as an internal bridge between two otherwise segregated pieces of nomadic life. The *tende* allows for interactions that cross through the caste distinctions of a stratified society; a bridge connecting people. The *hjeni* weaves together two arenas of Bedouin life, the wilderness and the encampment; a bridge connecting contradictions in an individual life. Furthermore, both camel songs create a nostalgic bond, linking modern Tuareg and Bedouin to their past social identities. The camel music allows movement (even travel) between two poles of the nomadic experience, as interpreted differently by the Tuareg and the Bedouin.

Thus, an external bridge between the Tuareg and the Bedouin supplements the internal bridge within each culture, as the camel songs bring these two nomadic societies into a dialogue. Customs, language and culture often distinguish different peoples to such an extent that comparisons lose their sensibility. Here, the camel songs actually build a vocabulary for comparing the Tuareg and the Bedouin through the common language of music. While the separations within these groups differ, both use music to reach beyond those boundaries. Moreover, these songs center on a (if not, *the*) key aspect of these nomads order their own nomadic lives. Listening to these camel songs is in fact the same activity as observing how these groups elucidate their own “nomadness.”

This bridge extends beyond the nomadic world, as well. At a basic level, it is the camel that separates these pastoral nomads from sedentary people. All of the differences between these two societies are extrapolated from the fact that nomads must follow their animals from one pasture to the next. But in the cases of the *tende* and the *hjeni*, the camel becomes a part of music; a universal art form that occurs in all societies. The critical aspect that distinguishes these people from one another then transforms into something that they share. The music expands the range of human communication. This is not to say that listening to nomadic camel songs will ease the tension between nomadic and sedentary people; nor is that outcome necessarily desirable. Rather, the camel songs act as an external bridge, a shared language, that communicates to outsiders what is essentially human about this way of life.

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