

Distribution Agreement

In presenting this thesis as a partial fulfillment of the requirements for a degree from Emory University, I hereby grant to Emory University and its agents the non-exclusive license to archive, make accessible, and display my thesis in whole or in part in all forms of media, now or hereafter known, including display on the World Wide Web. I understand that I may select some access restrictions as part of the online submission of this thesis. I retain all ownership rights to the copyright of the thesis. I also retain the right to use in future works (such as articles or books) all or part of this thesis.

Caroline Maness

4/19/11

Wiener Amerikaner oder amerikanischer Wiener? A Comparative Analysis of Three Viennese
Scientists – Eric Kandel, Carl Djerassi, and Erwin Chargaff

by

Caroline Maness

Peter Hoeyng
Adviser

Department of German Studies

Peter Hoeyng
Adviser

Caroline Schaumann
Committee Member

Angelika Bammer
Committee Member

4/19/11

Wiener Amerikaner oder amerikanischer Wiener? A Comparative Analysis of Three Viennese
Scientists – Eric Kandel, Carl Djerassi and Erwin Chargaff

By

Caroline Maness

Peter Hoeyng

Adviser

An abstract of
a thesis submitted to the Faculty of Emory College of Arts and Sciences
of Emory University in partial fulfillment
of the requirements of the degree of
Bachelor of Sciences with Honors

Department of German Studies

2011

Abstract

Wiener Amerikaner oder Amerikanischer Wiener? A Comparative Analysis of Three Viennese Scientists – Eric Kandel, Carl Djerassi and Erwin Chargaff

By Caroline Maness

Vienna is known to the world as a cultural center of Europe. However, this reputation cannot entirely overshadow the history of violence exhibited by the Catholic majority in Vienna towards the Jews after the Anschluss in 1938. Despite the traumatic events that followed the Anschluss, many Viennese Jews still look fondly upon the city and wish to reconcile their painful memories. Notably, three prominent scientists – Eric Kandel, Carl Djerassi, and Erwin Chargaff – wish to reconcile with their memories of Vienna after long productive careers in the United States. This thesis explores Vienna's influence on the lives and careers of these three scientists as they cope with their painful memories of the past and rejoice in their happy memories as well. While the three scholars were very influential in their own respective scientific fields, each felt the need to turn away from science and embrace the artistic influences of Vienna in order to reconcile with the past.

Wiener Amerikaner oder amerikanischer Wiener? A Comparative Analysis of Three Viennese
Scientists – Eric Kandel, Carl Djerassi and Erwin Chargaff

By

Caroline Maness

Peter Hoeyng

Adviser

A thesis submitted to the Faculty of Emory College of Arts and Sciences
of Emory University in partial fulfillment
of the requirements of the degree of
Bachelor of Sciences with Honors

Department of German Studies

2011

Acknowledgements

I would like to thank my advisor, Peter Hoeyng, as well as my committee members, Caroline Schaumann and Angelika Bammer. I would also like to thank Paul Lennard of the Neuroscience and Behavioral Biology Department for his guidance and support.

Table of Contents

Introduction.....	1
Chapter I: A brief overview of Jews in Vienna.....	12
Chapter II: Vienna's role in the shaping the careers of Eric Kandel and Carl Djerassi.....	17
Chapter III: <i>Vergangenheitsbewältigung</i>	36
Conclusions.....	54
Bibliography.....	58

Wiener Amerikaner oder amerikanischer Wiener?
**A Comparative Analysis of Three Viennese Scientists – Eric Kandel, Carl Djerassi,
and Erwin Chargaff**

Introduction:

Vienna is popularly known for Mozart, Sachertorte and Saint Stephen's Cathedral. However, there are darker aspects to the city's history that are often overshadowed by the imperial city's grandiose reputation for its culture. As if to lend proof to the psychoanalytical concepts of Vienna's own Sigmund Freud, the Viennese collective memory often suppresses the city's unforeseen reaction to annexation by Germany in March 1938, when the majority of its citizens brutally turned on those of Jewish decent, raiding their shops and homes. Despite the events surrounding Kristallnacht that led to the abrupt and emotional exodus of many Jews from Vienna, this event is not the overpowering memory in the minds of many Viennese Jews. Notably, the three scientists - Eric Kandel, Carl Djerassi, and Erwin Chargaff - document their experiences in Vienna in happier light. All three left Vienna shortly before the onset of World War II and moved to the United States, where they would eventually begin their very distinguished scientific careers. Though they all vividly remember the traumatic circumstances that forced their departure from the city, they also document fond early memories of the city and express an ineffable connection to Vienna that is able to transcend the era of the Nazis and the decades in America.

All three scientists were exposed early in life to the cultural wonders of Vienna. They all seem to be so in awe of the city that still captivates their thinking despite their long absences. The three scholars are also similar in that each made monumental discoveries in their own field. Eric Kandel won the Nobel Prize for his work on the neurobiology of memory, Carl Djerassi discovered the biological mechanism that led to the synthesis of the oral contraceptive birth control pill and Erwin Chargaff discovered base complementarity which laid the ground work for the discovery of the DNA double-helix structure. As if these similarities are not sufficient to estab-

lish a foundation for comparison, all three scientists began writing autobiographies and fiction. Coincidentally or not, all three scientists also use Vienna as a recurring theme in many of their works. In short, these three researchers are prime examples of the Viennese Jews that the Vienna historian George E. Berkley was referring to when he commented: “The fierce attachment of so many Jews to a city that throughout the years demonstrated its deep-rooted hate for them remains the greatest grim irony of all” (Berkley, xvi). Yet, I argue the fact that all three are infatuated with the city despite their forced departure is more than coincidence or irony. Instead this attachment suggests that there is an ineffable quality about Vienna that solidified its place in the memory of Eric Kandel, Carl Djerassi and Erwin Chargaff.

In this comparative reading I will explore the connection between a Viennese childhood and a scientific career in America through the writings of Eric Kandel, Carl Djerassi and Erwin Chargaff. This comparison will include how each of the three scientists came to terms with their Viennese past and reconciled their painful and joyful memories of the imperial city. In order to trace the similarities between these three scientists, I will use reductionism, the favored model of research of many scientists that can also be applied to art and literature. In reductionism artists “intentionally limit the scope and vocabulary of their expression to convey in minimalist form the most essential, even spiritual ideas of their art” (Kandel, *The Self* 282). I will employ this methodological approach to draw comparisons between the three scientists by casting aside small differences between them so that one can focus on the overarching themes of their memories and emotional ties to Vienna.

Eric Kandel was born in Vienna to Charlotte and Hermann Kandel in 1929 (Kandel, *In Search of Memory* 13). Both of Kandel’s parents moved to Vienna before World War I and had become deeply influenced by the Viennese culture. The Viennese highly valued professional

success while the assimilated and educated Jewish community believed in universal literacy so that all could read the Torah. But also, as a result, it was of utmost importance to aspiring Jewish parents that their children become educated and beyond that to “not simply achieve economic security, but rather to use economic security to rise to a higher cultural plane” (Kandel, *In Search of Memory* 22). Though they were lower middle-class store owners, like many Viennese the Kandels saw “themselves as citizens of the world, and exposed their children to culture early in life”, since the concept of “*Bildung* - the pursuit of education and culture” was very important to Jewish parents, regardless of social class (Kandel, *In Search of Memory* 22-23). Hermann and Charlotte Kandel were no different. They were able to share their intellectual connection to the culture of Vienna with their children. Over time Eric Kandel developed his own lasting appreciation for Vienna’s rich culture that would remain embedded in his memory throughout his lifetime.

For the Kandels, as for many Jewish families in Vienna, the city that entranced them with its splendor would ultimately betray them. Despite the fact that the Jewish community made up roughly ten percent of the city’s population, they were discriminated against in almost every aspect of life. They were excluded from the upper ranks of society unless they assimilated into the majority culture by religious conversion to Christianity (Kandel *In Search of Memory* 20). However, up until 1938, discrimination was based on more or less latent cultural anti-Semitism: the idea that “Jewishness” is acquired through upbringing in a Jewish home. When Hitler invaded Vienna in March of 1938, latent cultural anti-Semitism changed to openly fierce racial anti-Semitism. The Viennese society turned viciously against its Jewish citizens, fully embracing the belief that Jews are a genetically different people, who could never become “‘true’ Austrian[s]. Conversion – that is to say religious conversion – was no longer possible” (Kandel *In Search of*

Memory 31). In response to the Nazi invasion and the resulting changes in the public attitude, the Kandels decided to flee Vienna and move to the United States. Eric and his brother Ludwig left the city in April 1939, whereas their parents joined them in the United States a few months later (Kandel, *In Search of Memory* 34).

Kandel learned English quickly after arriving in the United States, and began to excel in school. He went on to attend Harvard University, where he majored in Modern European history and literature, focusing on the influence of National Socialism on German writers (Kandel, *In Search of Memory* 39). However, over time Kandel's interest shifted to psychoanalysis and eventually to the biology of consciousness and unconscious memory (Kandel, *Umgang mit dem Nationalsozialismus* 35). After years of work on the neurons in the model system *Aplysia* at Columbia University, Kandel won the Nobel Prize in Physiology or Medicine in the year 2000 for "signal transduction in the nervous system" (Kandel, *In Search of Memory* 393). Winning the Nobel Prize ultimately led Kandel back to Vienna, as the city sought honor and reconnect with one of its lost citizens.

Kandel's early experiences with Viennese culture have profoundly influenced the course of his life from both a scientific and personal standpoint. In multiple autobiographical texts Kandel expresses that his experiences in his last year in Vienna are largely responsible for his motivation to study the biological foundations and mechanisms of memory. For this reason Kandel's writings are particularly important for this comparative reading since larger implications of his work on memory are reflected in his own memoirs. Kandel's work also strengthens his connection to Vienna since he sees his work as the modern day version of Sigmund Freud's psychoanalysis. In an interview Kandel gave for the film adaptation of his autobiography he proclaims that if Freud were alive today, he would be doing the same work as Kandel.

Carl Djerassi was born in Vienna in 1923, six years earlier than Kandel, to a Viennese mother and Bulgarian father (Djerassi, *The Pill, Pygmy Chimps...* 10). Like Kandel, Djerassi's memories of Vienna are a mixture of pleasant recollections of Viennese music and scenery combined with the traumatic memories of the Nazis invading the city after the Anschluss. Djerassi recalls that before annexation, he could play soccer in the park with his friends even though it was "verboten." After the Anschluss, he would never dare disobey city rules for fear of the Nazis or the police (Djerassi, *The Pill, Pygmy Chimps...* 11). Djerassi's parents divorced when he was young and his father moved back to Bulgaria but Djerassi's mother was hesitant to leave the city. Though Vienna had become a hostile place for Jews after the invasion of the Nazis, like many Viennese, she felt Vienna was the only place she would feel at home (Djerassi, *The Pill, Pygmy Chimps...* 10). Eventually, Djerassi's parents remarried for long enough so that Carl Djerassi and his mother could get Bulgarian passports and escape Vienna. They lived in Sofia for about a year, awaiting visas so that they could leave Europe for the United States. While in Sofia, Djerassi attended the American College in preparation for his move overseas (Djerassi, *The Pill, Pygmy Chimps...* 15). In 1939, when Djerassi was 16, he and his mother left Bulgaria for the United States (Djerassi, *The Pill, Pygmy Chimps...* 10).

Once in America Djerassi attended college at the University of Wisconsin and began his scientific career. Afterwards he worked for various pharmaceutical companies (Djerassi, *This Man's Pill* 36). In 1951 Djerassi, along with colleagues at Syntex pharmaceuticals in Mexico, invented the first oral contraceptive pill. After years of successful scientific research Djerassi began to write fiction and several autobiographical works. He even termed the new genre "science-in-fiction" as opposed to "science fiction." In this genre, Djerassi writes fictional novels about scientific academia and his fictitious science often contains German themes or is set in Vienna or

the German-speaking world. In short, like Kandel, Djerassi returns to his hometown in a deliberate fashion through his work.

Erwin Chargaff is the oldest in the group and was born in Czernowitz, Austria in 1905 (Chargaff, *Heraclitean Fire* 8). Today, Czernowitz is part of the Ukraine but is still often called “Little Vienna” because of its reputation as one of the cultural and intellectual centers of the Austro-Hungarian Empire. Chargaff and his family moved to Vienna during the beginning of World War I (Chargaff, *Heraclitean Fire* 12). Despite his early childhood years in Czernowitz, in Chargaff’s mind Vienna has “always [been] my home town. At any rate, it is in Vienna that my father is buried, it was from Vienna that my mother was taken away” (Chargaff, *Heraclitean Fire* 12).

Chargaff recalls that even at an early age he was an avid reader and much of his early education came from reading the family’s encyclopedia collection and books of German poets (Chargaff, *Heraclitean Fire* 10). In 1915, Chargaff’s obsession with reading took a new turn when he discovered the works of the Austrian Karl Kraus. Kraus was a Viennese satirical writer, whose works exerted “the deepest influence on [Chargaff’s] formative years...he taught [Chargaff] to take care of words as if they were little children, to weight the consequences of what [he] said as if [he] were testifying under oath” (Chargaff, *Heraclitean Fire* 14). While it would be years before Kraus’ influence on Chargaff could be seen in Chargaff’s intellectual writings, Chargaff’s enduring love for Kraus’ work helped tie the scientist to Vienna during his absences, since Kraus himself was Viennese.

As the son of an upper middle-class bank owner Chargaff was expected to attend university and “acquire a doctor’s degree... without which a middle-class Austrian of my generation would have felt naked” (Chargaff, *Heraclitean Fire* 29). From 1924 to 1928 Chargaff studied

Chemistry at the University of Vienna, a topic that he admittedly stumbled upon, as it was the only “natural science offering [with] some hope of employment” (Chargaff, *Heraclitean Fire* 30). When he received his Ph.D, Chargaff departed for the United States where he served as a research fellow at Yale before returning to Europe in 1930. He conducted research for a short time at the University in Berlin, a city that in Chargaff’s opinion paled in comparison to Vienna. In 1933, he then moved on to conduct research at the Pasteur Institute in Paris (Chargaff, *Heraclitean Fire* 47). However in 1935, with the growing power of Hitler and the Nazi party, Chargaff decided to leave Europe and moved back to the United States for good, where he began his research at Columbia University.

Chargaff’s research at Columbia University dealt mostly with the study of nucleic acids, such as DNA. He is best known for a discovery he made in 1953, that the percentage of guanine units equals the percentage of cytosine units in a species’ DNA and that the percentage of adenine equals the percentage of thymine. This discovery is the principle of ¹ “base complementarity.” Chargaff’s results were later used by Francis Crick and James Watson to discover the molecular structure of DNA. Though Chargaff’s research paved the way for the discovery of the double-helix structure of DNA, Chargaff never received recognition from scientists in his field for his discovery (Keller 59). After his forced retirement in 1975, Chargaff turned to writing and embraced the genres of cultural and philosophical essays.

Erwin Chargaff, like Eric Kandel and Carl Djerassi, shifted his professional career to non-scientific pursuits in order to express ideas that were beyond the scope of science. While the

¹ Base complementarity: the property of double-stranded nucleic acids that prescribes that guanine (G) always complements cytosine (C) and adenine (A) complements thymine (T) in a double-stranded segment of DNA. Therefore C and G will always be present in equal percentages and A and T will be present in equal percentages. In RNA adenine (A) complements uracil (U).

scientific work of each scholar was of paramount importance to their given fields, scientific exploration could not aid in reconciling their identities as Viennese-Americans. If the three continued their careers as scientists alone, each would remain a *Wiener Amerikaner* (Djerassi, *Wiener Amerikaner oder amerikanischer Wiener?* 19). They would be American in principle with only a distant childhood in Vienna to justify the addition of the modifying adjective *Wiener* in front of their main identification. As is evident from their writings about Vienna, Kandel, Djerassi and Chargaff are not content to resign their memories of Vienna to dormant vestiges of the past. Through their later non-scientific work, the three strive to reestablish a connection to the city. While their scientific work defined the three as Americans, their later writings defined them as Viennese. Their detours in writing outside of their fields of research transformed Kandel, Djerassi and Chargaff into *amerikanischer Wiener[s]*, or Viennese men with the added perspective of an American education and career. However, the scientists' education and success in the United States makes their attachment to Vienna even more peculiar. Why would three Jewish men yearn to reestablish a connection with a city that showed them immense cruelty instead of accepting "Amerikaner" as their main identity and continuing the careers that led to recognition and respect in the United States? While George E. Berkley would deem this attachment a "grim irony," I argue that their shared attachment is more meaningful than mere irony (Berkley, xvi). There is an ineffable draw to Vienna that transcends the scientists' individual experiences, long absences and traumatic memories.

This thesis is a comparative reading that will analyze autobiographical texts and other works by Kandel, Djerassi and Chargaff. Though the breadth of their writings varied from fiction to philosophy, Vienna is a recurring motif in all of their works. Hence, I will elucidate the qualities of Vienna that captivate the memories of the three scholars by analyzing their published

works outside of their scientific fields. Kandel and Djerassi's accounts of Vienna will be compared most directly since the two have the shared experiences of living in Vienna during the Anschluss and explicitly address their feelings towards this event (Chargaff lived in America at the time of the Anschluss and does not speak directly about his memory of this period). However, both scientists portray their relationship with Vienna as very complex. The time and circumstances of their departure account for many of their ill feelings towards the city but their "fierce attachment" can only be explained in light of the history of Jews in Vienna (Berkley, xvi). For this reason I will include a cursory history of Jewry in Vienna in order explain the collective cultural memory of the Jewish community that framed Kandel and Djerassi's attachment to the city. By clarifying the historical connection between Jews and Vienna I will then move on to explain the specific influence Vienna exerted on Kandel and Djerassi.

In chapter two I will explore the nature of the memories that are most vivid in the minds of Kandel and Djerassi, as well as a rationale as to why these particular memories were enduring. Generally, the lasting memories the scientists retain from their time in Vienna are framed by intense emotion. I will then explore how Kandel and Djerassi's emotional memories of the city continued to shape their careers years after they had departed. In order to draw a comparison between Kandel and Djerassi, I will extrapolate the major themes from their memories while reading their speeches and papers in which the scientists comment about their connection to Vienna and the circumstances under which they were forced to leave. Some of Djerassi's "science-in-fiction" novels will also be presented here as examples of how Djerassi pays homage to Vienna by using Viennese-themes in his fictional works. Also, one of Kandel's scientific journal articles will be considered in this analysis. This text, however, will only be used since it pertains to the interface between Kandel's molecular research and the lived human experience. This text, Kan-

del's *The Self: From Soul to Brain*, will be considered, as it is the basis my methodological approach. In his essay, Kandel explains his use of "reductionism" in his study of memory through model systems, and also how he relies on reductionism to perceive art. The majority of Kandel's and Djerassi's scientific journal articles will be excluded from this comparative reading since they do not address the connection between science and the human aspects that influence a scientist's course of research.

Although Erwin Chargaff frequently wrote about his memories of Vienna, he and his writings will be excluded from the second chapter of this comparative reading. He will be excluded for several reasons: firstly, Chargaff did not live in Vienna at the time of the Anschluss; therefore, he does not have specific traumatic memories of that time like Kandel and Djerassi. Though Chargaff has a strained relationship with Vienna that he strives to reconcile through his writing, his painful memories stem from multiple incidences of being forced to leave due to economic or safety reasons, as opposed to one overpowering traumatic event. Secondly, while Kandel won a Nobel Prize for his research and Djerassi received the majority of the credit for the discovery of the birth control pill, Chargaff's discoveries were largely overshadowed by the work of James Watson and Francis Crick. Even though Watson and Crick's discovery of the double-helix would not have been possible without Chargaff's discovery of "base complementarity," Chargaff was not applauded but rather "faulted for not seeing in this the implications" of his discovery (Keller 59). Thus, unlike Kandel and Djerassi, Chargaff never "received adequate credit for the contributions [he] did make" (Keller 59). This lack of recognition by his peers had a powerful impact on Chargaff since, as Djerassi puts it, "some writers but no scientists [can] cope with anonymity[.] Because for the former, reputation is ultimately established by general acclaim, whereas as scientist's standing *as scientist* is never made by the general public" (*This*

Man's Pill 75). Regardless of whether resentment towards his scientific peers is the cause, after his work with nucleic acids, Chargaff turned to writing philosophy – specifically protesting the philosophy behind contemporary scientific investigation. Since his works are more abstract and he does not offer direct commentary on the emotional effect of the Anschluss, Chargaff will not be compared alongside Kandel and Djerassi. Rather, Chargaff's intellectual semi-philosophy will be reviewed in the third chapter as part of a discussion of how each scientist engaged in intellectual discourse outside of their scientific field. It is in this light that Chargaff's own way of coming to terms with his Viennese past will be compared to Kandel's and Djerassi's writings.

In this chapter, I will review texts by each scientist that explain how they have emotionally been reunited with Vienna after their long absences. I will explore how they reconciled their identity as a Viennese-American. Chargaff will be reintroduced in this section since his non-scientific writings elucidate his healing process after the scorn in his scientific career. For Kandel and Djerassi this commentary is mostly found in their autobiographical texts, whereas Chargaff introduces Vienna and his departure from science as motifs in his intellectual essays. While each scientist assumes a different style when writing about Vienna, their works represent a key aspect of their attempt to reconcile their Viennese past with their lives in the United States.

Therefore, my main trajectory and thesis throughout is tracing the transformation of Kandel, Djerassi, and Chargaff from *Wiener*, to a *Wiener Amerikaner*, and their reconciliation as an *amerikanischer Wiener*.

Chapter I: A brief overview of Jews in Vienna

As Viennese Jews, Eric Kandel, Carl Djerassi, and Erwin Chargaff share a connection to the city that goes beyond personal and familial experience, but arises from the collective cultural memory of Jews in Vienna. The discrimination the three scientists experienced after the Anschluss was merely another stage of the undulating relationship between Jewry and Vienna. The recorded history of Jews in the imperial city is complex and spans almost a millennium. Since the fall of the Babenberger in 1248 and the rise of the Habsburg Empire the Jews of Vienna have seen times of great progress and times of bitter violence (Wistrich 5). At a time of religious discrimination in 1421 Duke Albert V, essentially decimated the Jewish population in Vienna by arresting Jews and martyring them at the stake. The Jewish children were either expelled from the city or baptized against their will. Nevertheless, Jewish families began to return to Vienna in the sixteenth century and in 1624 Ferdinand II established a *Judenstadt* for the Jewish families, which was essentially a ghetto, located in what is now the Leopoldstadt (Wistrich 8). Ferdinand II recognized the Jews as an economical asset and used Jewish bankers to finance the Thirty Years War. However, when Leopold I became emperor, he was influenced by his religiously fanatic wife and Bishop Kollintisch of Wiener Neustadt to once again expel the Jews from the city in 1669 (Wistrich 8). As a result after the second expulsion of the Jews, Austrian finances were in state of disaster. In 1693 Jews were slowly readmitted into the city but only the wealthiest Jews were allowed to return (Wistrich 9). During this time wealthy Jews prospered. They were known as “Court Jews” or *Hofjuden* (Wistrich 9). These *Hofjuden* were very influential within the Austrian government since they financed their private and political demands and supplies for the army. They were also very prominent figures in the Jewish community, as they established synagogues, schools, and obtained permission for new Jewish families to immigrate to Vienna

(Wistrich 10). The Jewish population in Vienna continued to grow in number and in power with the issuance of Joseph II's *Toleranzedikt* in 1782. At that time Austria became the first European nation to allow Jews to "regard themselves as permanent residents of the country they lived in" (Wistrich 20).

Generally, the Jewish population was not associated with any particular class of society (Wistrich 14). Therefore, the Jewish population did not confine themselves socially to the usual tendencies of their class when it came to education, or lack thereof, and culture. Jews of all socio-economic standing were committed to education and took advantage of the new educational opportunities through the *Toleranzedikt* to obtain "*Bildung and Kultur*" (Wistrich 21). However, opportunities to participate in the culture of Viennese society were far greater for the wealthy Jewish families. Therefore while the edict served to benefit wealthy Jews, the Jewish masses were generally disadvantaged because the new provisions for assimilation caused the Jewish community to lose cohesion (Wistrich 21).

The years after the Napoleonic wars and the Revolution of 1848 were known as the *Vormärz* years. Though the Jewish community was not particularly cohesive during this period of time, there were several progressive steps that added to the prominence of Viennese Jewry in Vienna: in 1812 the founding of a Jewish school in Vienna and the completion of a "neo-classical" synagogue in *Seitenstetengasse* in 1826 (Wistrich 24). The construction of the synagogue was particularly important since the rabbi, Isaac Mannheimer, who became the spiritual leader of the temple, was able to prevent a complete split and calm tensions between the orthodox and reform Jewish communities in the city (Wistrich 24).

The time between 1782 and 1848 also saw many other changes in the prominence of Jews in Viennese society. During this time there were many steps toward "modernization of

Austrian industry, commerce, and transportation [that] were carried out with the assistance of a number of enterprising Jewish financiers and businessmen” (Wistrich 26). Also during this time many more Jews began to study at the University of Vienna and gained prominence in academic subjects such as literature and journalism (Wistrich 27). These young students at the University would be instrumental in the Revolution of 1848 which fought for equal democratic rights.

For the Jews, the Revolution of 1848 was a multi-pronged movement by Jewish politicians and citizens to obtain “political freedom, human and civic rights” (Wistrich 30). Several prominent Jews were elected to Parliament in that year and many students, as well as liberal revolutionists from all fields, began to advocate openly for the emancipation of the Jews (Wistrich 28). The Jewish cause was helped by the fact that this Revolution not only addressed Jewish emancipation but was a wider movement of liberal middle-class citizens. Therefore the issue of Jewish emancipation was not separate, but part of a larger more powerful movement for human rights (Wistrich 29). The revolution at large failed but the Jews of the city made progress in that they were liberated from confined dwelling in the ghetto. Though this was a victory for the Jews, this change came with much resentment from the majority Catholic population in Vienna, and eventually laid the “seeds of *modern* anti-Semitic political movements” that would aid in Hitler’s control of Vienna (Wistrich 32).

After the revolution of 1848 the Jewish population in Vienna began to grow immensely both in size and in power. Around 1848 there were roughly 10,000 to 12,000 Jews living in the Austrian capital. After the revolution, the Jewish population grew considerably due to the influx of “Jewish immigrants from Bohemia, Moravia, and above all Hungary, which swelled the Viennese Jewish community from less than 10,000 in the 1850s to a high point of 175,318 by 1910” (Wistrich 41). Though the years of growth following the revolution of 1848 can largely be attri-

buted to the revolution, legislation passed in 1867 also greatly influenced the spike in Jewish immigration to Vienna in the 1800s.

In 1867, the *Grundgesetz* was passed, an Austrian civic grant that finally gave equal rights to all Jews living in Austria (Wistrich 43). This year also saw the establishment of the Israelitische Kultusgemeinde (IKG), an organization that had been in the works since 1852 but had yet to receive definitive status (Wistrich 43). The IKG represents the Jewish community and provides social, religious and educational services. Due to the passing of the *Grundgesetz* and the formation of the IKG, after 1867 Jews from Bohemia, Moravia, Hungary and other regions in the empire began to flock to the imperial city. These Jewish immigrants tended to have very little contact with the Gentile immigrants from their respective countries that moved to Vienna during this time. Instead, the Jewish immigrants lived in neighborhoods with other Jews, even though there were usually large disparities between social classes within those neighborhoods. This is a marked contrast from their Gentile counterparts who tended to only live in close proximity to those with similar economic interests (Wistrich 47). These living arrangements allowed the Jewish community to maintain a strong sense of Jewish identity and self-awareness while attenuating the impact of the outside forces of assimilation (Wistrich 47).

After the passage of the *Grundgesetz* in 1867, the Jewish population in Vienna grew steadily reaching a high point in 1910 with 175,318 Jews residing in Vienna. At this point in time Vienna had the third largest Jewish population in Europe (Wistrich 41).

The culmination of successes and setbacks for Jews in Vienna resulted in a collective Jewish mindset that transcended economic status by the time Kandel and Djerassi were born. Wealthier families had experienced great success Vienna and deeply valued the city that had allowed for and even augmented their careers as bankers and merchants. Wealth had also afforded

these Jewish families the opportunity to share in the city's cultural offerings along with their wealthy Christian counterparts long before the Jewish masses could enjoy these pleasures of the city. The lower and middle-class Jewish families similarly valued Vienna since it represented a place of Jewish success. Vienna was where Jewish children could receive an excellent education in academics and culture. It would mean "a great deal, even to a poor Jewish family in Vienna, that at least one son succeed in becoming a musician, a lawyer, a doctor, or, even better still, a university professor" (Kandel, *In Search of Memory* 22). Though there were tensions between the Jews and Catholics, Vienna was a place of progress where everyone, including lower class families, could enjoy the culture of the Opera and theater, become educated and achieve success. This aspect of attainability tied even poor Jewish families to Vienna since regardless of socio-economic status these Jewish families were still *Wiener*. Beyond being poor, wealthy, Jewish or Gentile, they helped build the city as *Wiener*.

Chapter II: Vienna's role in the shaping the careers of Eric Kandel and Carl Djerassi

Eric Kandel and Carl Djerassi are both *Wiener* since they were both born in Vienna and thus endowed with their intrinsic title. As mentioned before, Kandel's family were lower class storeowners while Djerassi's parents were middle-class and both doctors. Despite their class differentiation, both scientists were fully immersed in Viennese culture and nostalgically recall their childhood experiences as a *Wiener*. Kandel and Djerassi also both extended their relationship to the city by identifying themselves with Vienna's own father of psychoanalysis, Sigmund Freud. In statements that in themselves support Freud's theories about the powerful impact of childhood, the two scientists explain their own connections to Freud, thereby solidifying their own identity as *Wiener*. Carl Djerassi notes in his autobiography *The Pill, Pygmy Chimps and Degas' Horse* that he attended the same *Realgymnasim* as Freud (Djerassi, 7). He even refers to the *Realgymnaisum* as "'our' school" (Djerassi, *The Pill, Pygmy Chimps...* 9). Djerassi notes in *The Pill, Pygmy Chimps and Degas' Horse* that while both, Freud and he received good marks in the *Realgymnasium*, Freud never received a mark lower than *musterhaft* for *Betragen*, while Djerassi himself never received a mark higher than *befriedigend* (Djerassi, 7). Djerassi interprets these similarities and differences using popularized Freudian psychoanalytic language to mean that they were "two different versions of 'Mama's boy' – Freud nice and I naughty" (Djerassi, *The Pill, Pygmy Chimps...* 9). I interpret this comparison as evidence of Djerassi's desire to be considered *Wiener*, since association with a prominent Viennese scientist such as Freud lends credit to his own identity as Viennese.

Kandel's family was one of the poorer Jewish families in Vienna, therefore the connection he draws to Freud does not relate to academic similarities but rather physical proximity. In *Umgang mit dem Nationalsozialismus* Kandel remarks that "Wir lebten in einer kleinen Woh-

nung in der Severingasse 8, im 9. Bezirk, einem bürgerlichen Viertel nahe der medizinischen Hochschule, und gar nicht weit von Freuds Wohnung. Wir hatten allerdings zu beiden keinen Kontakt” (Kandel, 31). In this respect, Kandel realized fully the goals of a Viennese Jew by taking full advantage of his Viennese education to become a doctor *and* a university professor. When he was a child he could not fathom any connection with the level of *Bildung* that Freud’s apartment and the school of medicine represented. However, through “a solid education obtained in Vienna, combined with the sense of liberation [he] experienced on arriving in America.... [Kandel was] inspired to think in new ways” that propelled him to the ranks of the scientific elite alongside Dr. Freud. Although the two neuroscientists’ careers were decades apart, the two share an affinity that transcends time.

Kandel and Djerassi, while subject to different socio-economic circumstances, share remarkably similar recollections of their childhood in Vienna. Despite years’ worth of experiences in Vienna that could have worked their way into the long term memories of Kandel and Djerassi, the memories that have survived in their minds are surprisingly similar in context. Though the range of emotions that frame their memories is vast, each of their recollections of Vienna is tied to strong emotions. They structure their memories around happy occasions such as family vacations and birthdays, juxtaposed with the traumatic recollections of their exodus from Vienna.

In autobiographical texts written by both scientists, each vividly recalls joyful memories from their time in Vienna. Kandel describes in detail in his autobiography *In Search of Memory* the joy and excitement of his first sexual encounter with his housekeeper as if no time had passed at all (Kandel, *In Search of Memory* 23). Djerassi’s selective memories of his childhood years in Vienna also include an elaborate description of his first romantic experience. Djerassi recalls that one year at the summer camp, he met a girl that caught his interest named Manya. Though years

have passed and “the names and even the faces of some of my lovers from the intervening five decades have sunk in the depths of memory, but the name of the first woman who made my mouth dry and my hands moist still floats on the surface” (Djerassi, *The Pill, Pygmy Chimps...*10). For Kandel and Djerassi their recollections of their first romantic interests are more powerful than mere factual memories of moments that past many years prior. They remain ingrained in the scientists’ memory while many other names and events are long forgotten. Hence, their identification with the most prominent Jewish figure in Vienna goes beyond personal statements of similarities, the two supply anecdotal evidence for Freud’s theories of sexual expression in childhood. However love affairs are not the only sensual memories that are anchored in the memories of Djerassi and Kandel. The two often frame their memories with the sensual pleasures of Viennese music and food. For instance, Djerassi remarks in his autobiography, *The Pill, Pygmy Chimps and Degas’ Horse* that even the sensual pleasure of Viennese food remained in his memory for decades. When visiting Vienna in 1988, 50 years after his departure, gustatory nostalgia led Djerassi to select *Germknödel* off a menu of desserts (Djerassi, *The Pill, Pygmy Chimps...* 6). He could not remember what the dish looked like or even exactly how it tasted but remembered the gustatory pleasure when he enjoyed this dessert as a child. The memories of these pleasurable events are preserved while so many others are swept away by time.

The distribution of Kandel and Djerassi’s memories of Vienna around polar extremes of emotion is not surprising in light of current neuroscience research in memory. While Kandel does in fact research memory, his area of research does not involve memories anchored around emotion. Kandel’s research deals with explicit memory tracts from the prefrontal cortex to the hippocampus, while emotional memories are stored in the amygdala (Kandel, *In Search of Memory* 134). These memories are so strong since there is an “unconscious evaluation of the frighten-

ing stimulus” that elicits a feeling of fear before the mind can consciously evaluate the situation (Kandel, *In Search of Memory* 344). Therefore, the lasting memory is not just that of the factual event, instead the factual memory is linked to the unconscious response of happiness or fear. As a result the memory is retained more clearly since it is consolidated to long-term memory in the cortex from two different brain areas. In the case of Kandel and Djerassi this phenomenon is evident in their own personal narratives of their childhood since the anecdotes they retell are framed by strong emotions.

As a result of the mind’s tendency to anchor memories to emotion, Kandel and Djerassi tend to be haunted by their vivid memories of the intense pain and trauma they experienced in their last years in Vienna. Both scientists vividly remember the Anschluss, and even though they were very young at the time, they seemed to be aware that their lives would never be the same. Kandel acknowledges that compared to other Jewish families in Vienna and across the German-speaking world, the violence his family endured was much less severe. However, the brutality he did face was burned into his memory for a lifetime. Well over 60 years after it happened, the memory of Kristallnacht appears to Kandel as if it were yesterday. He and his family returned home to their apartment to find it completely ransacked. All of their valuables were missing, including a brand new toy car Eric had recently received for his ninth birthday. A few days later Kandel’s father, Hermann, was arrested by Nazi police and held in prison for several days before being released. Kandel’s parents rightly assumed the violent anti-Semitism would continue and decided to move to the United States (Kandel, *Umgang mit dem Nationalsozialismus* 34). Though the Kandels escaped Vienna unharmed, “Hitlers triumphaler Einmarsch in Wien und der großartige Empfang, den er von den Wienern erhielt, machten auf mich einen unauslöschlichen

Eindruck” on Eric Kandel that years of memories in America could not overshadow or erase (Kandel, *Umgang mit dem Nationalsozialismus* 32).

In Carl Djerassi’s autobiography, *The Pill, Pygmy Chimps and Degas’ Horse*, Djerassi notes the fickleness of his own memory when he remarks “I think of teachers from my time and cannot remember a single name. I recall the geographer who terrified us with his jailer’s voice, only to end up himself in jail and then the gas oven” (Djerassi, *The Pill, Pygmy Chimps...* 8). While Djerassi’s fate was not nearly as grim, he still clearly remembers the changes in his life imposed by the Nazis. He recalls watching from the balcony of his family’s apartment in the 2. Bezirk and watching “the Brown Shirts with the swastika armbands pour across the bridge” over the Donau Kanal (Djerassi, *The Pill, Pygmy Chimps...* 11). Djerassi remarks that previously, his mother had used the balcony as an “observation post to watch me prance away from the police in the park across from the Donau Kanal” where he and his friends would play soccer despite the fact that it was forbidden (Djerassi, *The Pill, Pygmy Chimps...* 11). After the Anschluss Djerassi’s mother would never permit this since “the mere thought of a Jewish child in the hands of the Nazis was enough to cause nightmares” (Djerassi, *The Pill, Pygmy Chimps...* 11). Djerassi was more fortunate than Kandel in that intimidation was the worst violence he suffered and his home was never raided. Though pure luck might have saved Djerassi’s apartment from violation by the Nazis, it is likely that the family’s status as wealthier doctors allowed their home to be spared. Djerassi and his family were also fortunate in that Djerassi’s father lived in Bulgaria so he did not suffer the humiliation imposed by multiple unwarranted arrests like Kandel’s father. Nevertheless Djerassi and his mother faced discrimination and the threat of violence if they remained in Vienna. Djerassi recalls with an air of despondence that after the invasion of the Nazis, there would be no return to normalcy: “the routine life of my family ended with the Anschluss in 1938,

when everybody in Vienna started to wear insignia: swastikas for the Nazis and the Gentile cowards, the Star of David for the Jews...” (Djerassi, *The Pill, Pygmy Chimps...* 10). Dejected, Djerassi and his mother were forced to leave the city to ensure their own safety. This time of trauma in Djerassi’s life left vivid vestiges in his brain. He can still recall the specific stories and emotions he felt during the times of intense pleasure and pain in Vienna as if no time has passed at all.

Kandel and Djerassi both structure their memories around polar extremes: intense pleasure and intense trauma. This distribution of memories is not surprising given that research in modern neuroscience suggests that emotional memories are remembered more vividly than purely factual memories. However, it is unusual that Kandel and Djerassi recognize their intensely happy memories in Vienna as well as the memories of trauma. This is peculiar since many other Jews who lived in the German-speaking world during that time do not include their joyful memories of their homes as part of their personal narrative. Instead, the fearful and painful memories overshadow and block out any happy memories from that time. For example, Viennese author Růth Kluger documents her experiences during the Holocaust in her autobiography *weiter leben: Eine Jugend*, however her accounts do not include joyful memories of Vienna as Kandel and Djerassi do (Lubich, 191). By neglecting the retelling of pleasant anecdotes in her autobiography, Kluger demonstrates that either her horrific memories of *Theresienstadt* concentration camp are so overpowering she cannot associate joy with this time period, or she simply chooses not to include these stories in her narrative. Either reason indicates she no longer values her connection to Vienna like Kandel and Djerassi. Kluger and her works, however, will not be discussed in this text since she is not a scientist and her experiences in *Theresienstadt* concentration camp were far more traumatic than Kandel and Djerassi’s experiences during the Anschluss.

The fact that the two scientists account for both extremes of memory in their recollections of Vienna suggests that there is a unique quality to the city that was able to maintain their attachment. Freud would argue that Kandel and Djerassi remembered Vienna so clearly since childhood is a particularly formative time for memories. While childhood memories have the capacity to be particularly vivid, I argue, however, that Vienna played a synergistic role in solidifying those memories. When the two scientists attempted to describe their memories of life in the United States after they left Vienna, the memories are not nearly as clear, even though they had only aged a few years. For example, in the film adaptation of Kandel's autobiography *In Search of Memory*, he easily located his childhood apartment and the location of his family's toy store when he is walking around the city of Vienna. In contrast, when he is trying to find his family's apartment after they moved to Brooklyn, he walked in and out of multiple apartment buildings and individual apartments, unable to remember which one he had lived in as a child. Kandel does not have as clear of memories of his childhood experience in Brooklyn since his memories were not associated with strong emotions or unique aspects of culture. That is not to say that there were not cultural elements of Brooklyn that Kandel enjoyed in his youth or that he did not experience the joys and trials of childhood in Brooklyn, but these events did not result in vivid, enduring memories that he can recall in detail many years later. Like Kandel, Djerassi also documents the subsequent years after he left Vienna in his autobiographies, but the memories are not as clear as his memories of Vienna. The post-Vienna memories from his time in Bulgaria and the United States are presented as factual recall with no emotional connection. Though he would later reconcile his Viennese memories he recalled shortly after the pilgrimage to America that he was relieved with the factual manner with which he could address his Bulgarian memories since

he could eliminate “potential questions about the Viennese experience I wished to bury rather than resurrect” (Djerassi, *The Pill, Pygmy Chimps...* 20).

After years in America, the distance in time and space allowed the scientists to come to terms with their memories of Vienna so that they could consciously and willingly resurrect their experiences in the city. However, even before Kandel and Djerassi intentionally reconciled with their childhood in Vienna, the city’s aura persisted in their sub-conscious and influenced their professional work.

Kandel’s memory of Vienna has been influential to his academic work for the entirety of his university education and professional career. Kandel believes that his early childhood experiences in Vienna account for his interest in the human spirit, human behavior, human motives and the persistence of memory (Kandel, *Umgang mit dem Nationalsozialismus* 35). Kandel even poses the question in his autobiography *In Search of Memory* that in the simplest terms explains the driving force of his research in the mechanisms of memory: “How did the Viennese past leave its lasting traces in the nerve cells in my brain?” (Kandel, *In Search of Memory* 6). The leading question of Kandel’s research is to answer in biological terms what I strive to answer here in terms of the lived human experience in Vienna as Kandel describes in his autobiographical texts.

Kandel’s evolving academic interests stem from his surprise of the brutality the Jewish population experienced at the hands of the majority of the Viennese citizens.

“Wie konnte eine hochgebildete und kultivierte Gesellschaft, eine Gesellschaft die einst die Musik von Beethoven nährte, im nächsten Augenblick in die tiefste Verderbtheit herabsinken?” (Kandel, *Umgang mit dem Nationalsozialismus* 35)

The Catholic majority in Vienna had shown varying levels of anti-Semitism both openly and discreetly throughout the past millennium, but such an abrupt change to violence seemed to Kandel to be beyond human capacity. This abrupt change to violence by a population may at first seem like a question of the human spirit and not memory. However, the human spirit is in essence memory. Kandel chose to research memory since it is the glue that holds together our individual experiences and gives our lives continuity. If it were not for “the binding force of memory, experience would be splintered into as many fragments as there are moments in life” (Kandel, *In Search of Memory* 10). Memory gives continuity to individual identity and collective cultural identity as well. Collective cultural memory provides the basis for Kandel’s attachment to Vienna as well as the anti-Semitism that forced him and his family to flee the city.

Kandel and his family were spared much violence compared to other Jews in the city but nevertheless “diese traumatischen Ereignisse meiner Kindheit [sind] in mein Gedächtnis eingebrannt” (Kandel, *Umgang mit dem Nationalsozialismus* 36). It was not possible for Kandel to forget the traumatic experience he faced in his last year in Vienna so he embraced the motto of post-Holocaust Jewry “Vergiss nie!” and made that motto the driving influence behind his professional work (Kandel, *Umgang mit dem Nationalsozialismus* 36). However, Kandel’s desire to uphold the motto “Vergiss nie!” manifested itself through several other academic pursuits before Kandel decided to become a biological scientist. In this way, Kandel is also similar to Freud in that Freud explored several other career choices before he stumbled on the research that would define his career.

When Kandel began studying at Harvard University in the United States, his fascination with the experiences he encountered in Vienna manifested itself first in his studies of National Socialism through the lens of German literature. In Kandel’s senior year at Harvard, he was

working to complete his honors thesis in “the attitude toward National Socialism of three German writers: Carl Zuckmayer, Hans Carossa, and Ernst Jünger”, and planning to go on to do graduate studies in European intellectual history (Kandel, *In Search of Memory* 36).

Kandel’s initial interest in European history reflects his desire to better understand the circumstances under which he was forced out of his home. The anecdotes of many Holocaust survivors reflect that they wish only to suppress the memories of the past and do not seek to understand the underlying causes of the violence they endured. Kandel’s desire to study intellectual European history demonstrates his attachment to Vienna and yearning to uncover a justification for the brutality he faced there. As a part of the Jewish community, Kandel felt a sense of connection to the city, since it’s a city that his people built throughout trial and tribulation of the past millennium. Though there were bouts of strong anti-Semitism throughout Viennese history, events following the Anschluss were by far the most violent. The fact that Kandel nevertheless wanted to study the “logical” chain of events that led to irrational brutality demonstrates that his early attachment to Vienna is comparably represented in his memory as the brutality of the Anschluss. By studying the chain of cause and effect, Kandel is essentially justifying his enduring attachment despite the violence. Though there is not one single reason for Kandel’s attachment to Vienna, the collective cultural relationship between the Jewish community and Vienna is a largely responsible for Kandel’s unwavering bond with the imperial city.

Kandel completed his senior thesis on the influence of National Socialism on German writers, but before he could matriculate into a graduate program in this field, Vienna once again extended her influence in the form of a Viennese born woman named Anna Kris (Kandel, *In Search of Memory* 36). Kandel quickly fell in love with Anna towards the end of his junior year

at Harvard and she introduced Kandel to her parents, Ernst and Marianne Kris, who were both “prominent psychoanalysts from Freud’s circle” (Kandel, *In Search of Memory* 37).

Psychoanalysis immediately caught Kandel’s interest academically and beyond that, his interest was fueled by the roots of psychoanalysis. Kandel even notes in his autobiography: “My attraction to psychoanalysis was further enhanced by the facts that Freud was Viennese and Jewish and had been forced to leave Vienna. Reading his work in German awakened in me a yearning for the intellectual life I had heard about but never experienced” (Kandel, *In Search of Memory* 42). This junction in Kandel’s career marks a turning point both academically and emotionally. Instead of pursuing a career in European intellectual history, which would elucidate on a societal level the causes behind the Jews enduring attachment to Vienna despite anti-Semitism, he decided to study psychoanalysis, a field that could explain on a personal level why certain memories, such as his own memories of Vienna, could have such a large impact on an individual’s thinking despite trauma associated with those memories. By deciding to study psychoanalysis, Kandel had narrowed his own scope of analysis to an individual level. He changed his course of inquiry to try to answer the question “Why do I remember Vienna the way I do?” instead of “why did the violence I experienced happen?”

Kandel’s interest in psychoanalysis also marked an important turning point in how he viewed himself as a *Wiener*. When he studied German writers and history at Harvard his viewpoint was that of an objective observer who was analyzing historic events as if he had no emotional connection to the history he was analyzing. Therefore, his viewpoint was not that of a *Wiener*, but rather an American historian. In contrast, as a psychoanalyst he was a student of Freud, therefore drawing a connection between himself and a man who can be considered the quintessential *Wiener*. By following in the footsteps of a well-known Jewish Viennese scientist

who shared similar experiences in the city, Kandel began to reestablish his connection to Vienna and once again resume the identity of *Wiener*.

In order to become a psychoanalyst, Kandel would have to attend medical school, he therefore began his senior year at Harvard by taking his first medical school prerequisite course, and applied to New York University Medical School. Sometime into his medical education, Kandel began to wonder about the biological basis of the function of the brain structures. Once again, Vienna cast a spell of influence over Kandel when he met a French woman named Denise Bystryn. Kandel's relationship with Anna Kris had deteriorated since he moved from Cambridge to New York. There, Kandel met Bystryn, whom he later married. At first she declined his offers to date, but once she found out that Kandel was European, and specifically Viennese, she agreed to go on a date with Kandel. Kandel remarked of Bystryn that "as much as Anna influenced by thinking about psychoanalysis, Denise influenced my thinking about both empirical science and the quality of life" (Kandel *In Search of Memory* 48). Bystryn and Kandel married the summer after Kandel graduated from New York University Medical School. With Bystryn's encouragement, Kandel decided to embark on a research project that was "new and original" (Kandel, *In Search of Memory* 53). He began to study the biological basis of memory "one cell at a time" (Kandel, *In Search of Memory* 55). Under the auspice of Harry Grundfest, a professor at Columbia University, Kandel sought to discover the physical locations of the id, ego and superego that Freud described. In this way, Freud became the "Godfather" of Kandel's work, since the three types of cells that Freud described in terms of psychoanalysis served as the primitive groundwork for Kandel's biological course of inquiry.

Kandel's final academic detour led him to his current work on the mechanisms of memory storage in the hippocampus on a cellular level. By switching his academic pursuit to cellular

work, Kandel completely changed the nature of his research. Psychoanalysis pertains to the lived experience. Through psychoanalysis Kandel could seek to answer questions about himself or his patients as to why their memories are structured the way they are and how that has shaped their current consciousness. In his study of the mechanisms of memory storage, Kandel's work is unique and novel in that his research explores the interface of cell biology and the lived experience. Through his research on the hippocampus Kandel eventually answered his own question "How did the Viennese past leave its lasting traces in the nerve cells in my brain?" (Kandel, *In Search of Memory* 6).

Kandel's academic journey that led him to his extremely successful research career was certainly not direct. He made detours through the study of European intellectual history, and psychoanalysis before he finally began the research on the hippocampus that won him the Nobel Prize in the 2000. However, each of his academic interests was inspired by Vienna either directly or indirectly. Coincidentally, and whether consciously or unconsciously, Kandel's relationship to the Viennese Freud remained a constant motif throughout his life and a catalyst to his later career changes. Kandel's connection to Freud originated as one of mere proximity since Freud's apartment was near Kandel's childhood home. As Kandel aged adolescence his behavior confirmed Freud's theories as he developed a sexual interest in his nanny at a very young age. Kandel then extended his connection to Freud by analogy, when he decided to pursue a career in psychoanalysis. Kandel's work in psychoanalysis reaffirmed his connection to Freud and his identity as an *amerikanischer Wiener* but it ultimately was not the career choice that would allow Kandel to answer his questions about memory, thereby reconciling with his own memories. In order to reconcile with his Viennese memories, Kandel turned to researching the biological basis for the id, ego and superego that Freud described. Therefore, Freud became the "Godfather" of Kandel's

work, providing psychoanalytic theory to guide Kandel's biological research. Though Kandel has not lived in Vienna in over 70 years, the city shaped the course of his career and allowed him to explore his own identity as *Wiener*.

Kandel's current project is the invention of a little red pill that when taken regularly can help preserve memory (Kandel, *Umgang mit dem Nationalsozialismus* 42). Though the pill will mostly be used for the treatment of memory disorders, Kandel jokes that such a medication could help him remember his experiences in Vienna:

“Ich selbst warte schon ungeduldig auf diese „kleine Rote“, damit ich die vielen wichtigen deutschen Worte, die ich während dieser paar Tage in Wien lerne, mein Leben lang nicht wieder vergessen werde.” (Kandel, *Umgang mit dem Nationalsozialismus* 42)

Kandel's attachment to Vienna proved to be very influential in guiding his academic interests towards his research career. Vienna was equally influential in shaping the career of Carl Djerassi. However, his connection to the city manifested itself very differently. Just as Vienna shaped Kandel's career, each milestone in Djerassi's career was defined by his relationship to the city.

Djerassi was born in Vienna and lived most of his childhood in the city. Therefore as a young man immigrating to the United States, his personal identity was a *Wiener*. Throughout Djerassi's career he changed the way he viewed his own personal identity from a *Wiener*, to a *Wiener Amerikaner* to an *amerikanischer Wiener* (Djerassi, *Wiener Amerikaner oder amerikanischer Wiener?* 19). To the untrained eye these titles may seem as though their differences are inconsequential, but these titles represent the difference between *bezeichnen* and *kennzeichnen* (Djerassi, *Wiener Amerikaner oder amerikanischer Wiener?* 17). An adjective, such as *amerikanischer* or *kluger* describes or modifies someone or something. In contrast, the receiving noun

is what or who that person is in principle. The other key difference between these titles is that the adjective *Wiener* is unique in that “*Wiener* ist immer mit Großbuchstaben geschrieben, im Gegenteil zu >>gewöhnlichen<< Adjektiven wie *dumm*, *klug* und *amerikanisch*“ (Djerassi, *Wiener Amerikaner oder amerikanischer Wiener?* 18). These linguistic differences as Djerassi himself points out, represent an important cultural difference about how the Viennese view themselves. The adjective *wienerisch* is rarely used. Instead the Viennese always use the adjective *Wiener* which is granted the added distinction of capitalization while all other adjectives are lower case. Therefore, the title *Wiener Amerikaner*, meaning someone who is American in essence with the added nuance of being Viennese, is distinctly different from the title *amerikanischer Wiener*, a person who is Viennese with the modifier American.

When Djerassi left Europe he was only 16 years of age and arrived in the United States an indisputable *Wiener*. However, Djerassi lived with an American family for the period of time after his arrival and thus assimilated to American culture very quickly (Djerassi, *The Pill, Pygmy Chimps...* 17). Djerassi’s transformation into a *Wiener Amerikaner* was expedited in the wake of World War II as he began to distance himself emotionally from the city of his birth. In these years he talked mostly about his time in Bulgaria. Even when Djerassi gave informal lectures on the “Current Situation in Europe,” he spoke from the perspective of a Bulgarian since the “Viennese experiences I wished to bury rather than resurrect” (Djerassi, *The Pill, Pygmy Chimps...* 19-20). This period of suppression of his *Wiener* identity is analogous to the brief period of Kandel’s life in which he wanted to study European Intellectual history. Though the manifestations of their rejection of their *Wiener* identities were different, both avenues allowed the scientists to distance themselves from Vienna and comment on the current situation there as if they were outsiders. While Kandel’s gesture to reconcile his *Wiener* identity is clearly marked by his interest in

psychoanalysis, Djerassi's internal identity battle was masked for 50 years by the title *Wiener Amerikaner* that his scientific career granted him.

By the time Djerassi was an established chemist, his identity had been completely transformed: "Das heißt, ich war ein Wiener bis 1938, ein Wiener Amerikaner von 1940 bis 1990" (Djerassi, *Wiener Amerikaner oder amerikanischer Wiener?* 19). In the scientific arena he identified himself as a *Wiener Amerikaner* since his career in chemistry stemmed completely from his life in America as an American. Djerassi initially embraced the title of *Wiener Amerikaner* because he did not want to reconcile with his painful memories of Vienna. However as time passed, his scientific career reinforced this identity since his Viennese influences were not factored in to the output of his research. Regardless of whether Djerassi was ready during the intervening 50 years to once again embrace the title of *Wiener*, his firm identity as an American scientist prevented him from making this transition. After 50 years as a chemist and *Wiener Amerikaner*, Djerassi was ready to confront his memories of the past and change his career in order to reestablish his identity as an *amerikanischer Wiener*.

In 1990 Vienna once again cast her spell over Djerassi, and he began his transformation into an *amerikanischer Wiener*.

"Für die 50 Jahre ab 1940 – also mein halbes Jahrhundert als Chemiker – habe ich mich als Wiener Amerikaner beschrieben, während ich den Anfang meines Übergangs seit 1990 zu einem amerikanischen Wiener als eine Reflexion meiner schnell wachsenden literarischen Aktivität deute" (Djerassi, *Wiener Amerikaner oder amerikanischer Wiener?* 22).

Djerassi's transformation was largely influenced by his lifelong love for German literature. When he and his mother immigrated to the United States from Europe, their collection of books was the only reminder of home they could take with them:

“haben wir nur Kleider und Bücher, aber keine Möbel mit uns genommen. Und was finde ich noch 70 Jahre später in meiner amerikanischen Wohnung? Dass wir Bücher wie Jacob Burckhardts *Die Geschichte der Renaissance* oder Hans Tietzes zweibändigen *Tizian* mit uns über Bulgarien in die USA schleppten. Sind das die Gründe, warum in Amerika auch ein Kunstsammler wurde - hauptsächlich Werke von europäischen Künstlern - da ich doch immer als Kind und Teenager so oft ins Kunsthistorische Museum ging und schon solche Bücher las” (Djerassi, *Wiener Amerikaner oder amerikanischer Wiener?* 22)

Djerassi tied together three things that he loves – science, Vienna and literature – in order to become a writer and create a new genre called “science-in-fiction.” As an author Djerassi uses his insight from his scientific career to write stories about science that usually take place in Vienna or the German speaking world.

Djerassi's transformation from a chemist to a writer also marked his transformation from a *Wiener Amerikaner* to an *amerikanischer Wiener*. Since Djerassi sets his stories and plays in well-known locations in the German-speaking world, such as the Kunsthistorischen Museum in Vienna, he is creating his identity as a writer to be *Wiener*. However, since Djerassi views the science as an America, which is the content of his stories and plays, there are clear American nuances in the writing. It took five decades for Djerassi to come to terms with the past, the lasting attachment to the city that Djerassi formed in childhood eventually overtook the pain and led him to forge a new bond with the city. Through his “science-in-fiction” writing Djerassi not

only transformed himself into an *amerikanischer Wiener*, but he also began to demonstrate through his creative works the elusive qualities of Vienna that are responsible for his enduring attachment to the city. By integrating places he used to love in Vienna, or characters that share a similar story to his own, Djerassi was able to come to terms with his Viennese past through the narratives in his short stories. Djerassi's "science-in-fiction" created a unique outlet for his cathartic narrative since it allowed him to reflect on his scientific career as an American while writing as a *Wiener*. As an American scientist, his writing for scientific journal articles could not convey his feelings towards his past in Vienna. Even if his science had pertained in some way to quantitative analysis of the city, scientific writing still would not have been the appropriate outlet for his findings. In Djerassi's mind the "aggressive preamble 'let me tell you about my science'" is ineffective since the non-scientists would stop listening after such an introduction, instead he "prefer[s] to start with the innocent 'let me tell you a story'" (Djerassi, *This Man's Pill* 166). Coincidentally, Djerassi used his "science-in-fiction" stories as his own Freud-like "talking-cure" in order to deal emotionally and come to terms with his childhood.

Djerassi's metamorphosis into an *amerikanischer Wiener*, who writes cathartically about his Viennese past, was analogous to Kandel's career switch from pursuing intellectual European history to pursuing psychoanalysis. At this point in both scientists' careers, they made gestures that outwardly acknowledged reconciliation with their Viennese past. Kandel changed his focus to psychoanalysis, a field more interested in analyzing and treating the subjective experience, as opposed to European history, which called for objective analysis. Djerassi transformed his career and his personal identity from an American scientist who exhibited little connection to Vienna, to a Viennese writer who used Viennese characters and locations and part of his stories. Coincidentally, or not, both scientists' path towards reconciliation with their Viennese past once

again led to an encounter with Freud. Freud's influence on Kandel appears more direct, since Kandel was a student of psychoanalysis and he directly stated that part of his interest in the field stemmed from the fact that Freud's experience with Vienna was similar to his own. Djerassi's connection to Freud after his transition to a *amerikanischer Wiener* is not rooted in his career path, but rather his method of expression. By framing his personal narrative in the context of a "science-in-fiction" story, Djerassi makes use of the "talking cure" that is the basis of clinical psychoanalysis. In light of the theories of psychoanalysis, Djerassi's transformations from chemist to writer and a *Wiener Amerikaner* to an *amerikanischer Wiener* are not merely coincidental in time, but rather one caused the other. In short, Djerassi proves Freud's point that talking about memories as a narrative has a therapeutic effect. Thus the writing process that Djerassi went through in order to write his "science-in-fiction" stories was the catalytic element that allowed for his reconciliatory transformation into an *amerikanischer Wiener*.

Vienna had a profound influence over the course of the careers of Eric Kandel and Carl Djerassi. Through various forms of influence, the city shaped each of their careers to allow for the sequential stages necessary to cope with the memories of the Viennese pasts. Though Djerassi and Kandel's paths were different, and progressed at different paces, the two ultimately went through the same steps as their personal identities transformed along with their careers: *Wiener*, then *Wiener Amerikaner* and eventually on to *amerikanischer Wiener*.

Chapter III: *Vergangenheitsbewältigung*

As I have argued so far, the lives and careers of Eric Kandel, Carl Djerassi and Erwin Chargaff were continuously shaped by their early experiences in Vienna. In this chapter I want to take this approach one step further by correlating their Viennese roots with their need to turn away from science in order to fully reconcile with the memories of their pasts. While Kandel and Djerassi clearly outline the link between their non-scientific endeavors and their process of reconciliation in their autobiographical texts, Chargaff's progress towards reconciliation must be extrapolated from the thematic elements in his writing. Regardless of the extent to which the scholars explicitly expressed their process of reconciliation with their memories of Vienna, all three deviated from the usual course of an academic scientific career in order to further their personal process of *Vergangenheitsbewältigung*.

Vergangenheitsbewältigung is a German term that came into use shortly after the Holocaust. There is no single word in English to convey this concept but the best English translation would be approximately the “struggle to come to terms with the past.” Whether early on in their scientific career or relatively late, each scientist came to terms with their Viennese past and assumed the title of an *amerikanischer Wiener*. However, it is important to note that Kandel, Djerassi, and Chargaff's process of *Vergangenheitsbewältigung* caused each scientist to participate in academic and personal endeavors outside of the scientific careers to which they owe their early acclaim. Twentieth-century Vienna became an epicenter for scientific discovery, largely due to the work of Jewish scientists such as Freud. However, the historical collective memory of the Jews in Vienna was more strongly associated with the arts (Wistrich, viii). For many years before the passage of progressive legislation, including the *Toleranzedikt* in 1782 and the *Grundgesetz* in 1867, the Jews of Vienna were officially and unofficially excluded not only from pro-

fessional careers but also from enjoying many of Vienna's cultural aspects, such as the opera and art. Once the Jewish community was permitted to fully enjoy Viennese culture, they enthusiastically embraced this opportunity to pursue Viennese *Bildung*. For this reason, the three scholars turned to the artistic aspects of Viennese culture in order to cope with the past in ways their scientific careers could not afford.

Kandel's emotional return to and reconciliation with Vienna began indirectly via his connection to Freud that arose from his scientific endeavors as a psychoanalyst and researching the mechanisms of memory. However, his personal process of *Vergangenheitsbewältigung* was truly resolved by turning away from science and interacting directly with the city of his birth.

In the first few decades following the Holocaust, Kandel was not yet ready to emotionally deal with the past, in fact when faced with the opportunity he deliberately avoided any reference to the traumatic years surrounding the Anschluss: “On my first return visit to Vienna, in 1960, when a man came up to me and recognized me as Hermann Kandel's son, neither of us even mentioned the intervening years” (Kandel, *In Search of Memory* 408). Instead of beginning a direct dialogue about his feelings toward Vienna, in these years Kandel began to express his affection towards Vienna indirectly by collecting the works of Austrian and German artists. Kandel and his wife began to buy paintings by “Klimt, Kokoschka and Schiele” (Kandel, *In Search of Memory* 428). By collecting these works of art Kandel was able to appreciate the beautiful aspects of the city that he was exposed to as a child before the Anschluss anchored the memories of Vienna to those of trauma. Kandel's artwork collection served as a step towards reconciliation since he chose to not let painful memories of the past ruin his enjoyment of the beautiful art he associated with his childhood.

However, by 1989 Kandel “had reached the limit of [his] silence” (Kandel, *In Search of Memory* 408). While Kandel never used his scientific lectures in Vienna as an opportunity to berate the city of his birth, he began several talks by speaking freely about both the good and the bad memories he took away from Vienna: the joys of art and music juxtaposed against the anger, pain and humiliation he experienced upon his exodus from the city. Further extensions of this dialogue eventually resolved Kandel's struggle to cope with his Viennese past.

When Kandel won the Nobel Prize in the year 2000 he was flooded by calls of congratulations from estranged friends, former colleagues, and family members. Some of these calls, however, stood out in Kandel's mind since they were from Vienna congratulating Kandel on “another Austrian Nobel prize [and Kandel] had to remind them that this was an American Nobel Prize” (Kandel, *In Search of Memory* 395). It seemed hurtful and peculiar to Kandel that the same city that forced his departure years before only now recognized him as one of their own. Despite Kandel's annoyance that Austrian academics were trying to claim Kandel's scientific work as a *Wiener Amerikaner* as their own, Kandel saw his new heightened fame in the Viennese community as an opportunity. He took advantage of Vienna's renewed interest in him and his work in order to expand the dialogue on Austria's role in World War II and thus resolve his own personal struggle to reconcile with his Viennese past. Along with Austrian President Thomas Klestil, Kandel organized a symposium in Vienna entitled “Austria’s Response to National Socialism: Implications for Scientific and Humanistic Scholarship” (Kandel, *In Search of Memory* 405). Kandel hoped that the symposium would serve three functions:

“first, to help acknowledge Austria’s role in the Nazi effort to destroy the Jews during World War II; second, to try to come to grips with Austria’s implicit denial of its role

during the Nazi period; and third, to evaluate the significance for scholarship of the disappearance of the Jewish community in Vienna” (Kandel, *In Search of Memory* 405)

In addition to its multi-faceted goals, the symposium also proved to be influential in several ways in aiding Kandel’s process of *Vergangenheitsbewältigung*. Firstly, the symposium served as an opportunity for Kandel and other Viennese émigrés who shared similar experiences to speak freely to a captive audience that would not squirm or take offense at the inherent criticism and anger that their stories entailed. The ability to speak openly about his memories of Vienna helped Kandel personally reconcile with his past, since these speeches served as Kandel’s own version of Freudian “talk-therapy”. Also on a societal level, these speeches helped to dispel the “great Austrian taboo” by bringing to the forefront of the public’s attention the issues of the Holocaust that had long been denied and suppressed (Pelinka, 74).

The symposium was also very therapeutic for Kandel on another level since it gave him the “opportunity to establish contact with the Jewish community and to think about what made the Jewish experience there so special” (Kandel, *In Search of Memory* 409). Thus through this discourse, Kandel had the opportunity reflect upon and share his memories in a way that allowed him to better articulate the elusive attachment that he and other Jews felt towards Vienna despite a volatile history. While there are many likely reasons why any given Jewish individual looks so fondly upon their experience in Vienna, much of this attachment stems from the collective cultural history of Jewish progress and success in the city. As Hans Tietze put it: “Without the Jews, Vienna would not be what it is, and the Jews without Vienna would lose the brightest era of their existence in the recent centuries” (Tietze, 41). Appropriately, the reciprocal loss suffered by Vienna and the Jews after the Anschluss was one of the foremost reasons that Kandel wanted to organize the symposium in Vienna, and such a project was now feasible with his newly acquired

scientific status. In addition to the decimation of the Jewish population at large, after the annexation “the intellectual life of Vienna was in shambles” (Kandel *In Search of Memory* 406). The dismissal of Jewish faculty from Viennese universities dramatically damaged the strong academic infrastructure that the Jewish community helped build. By scorning the Jewish scientists and academics of the *Zwischenkriegszeit*, the Nazi movement succeeded in scorning Kandel as well. As a result, he rejected the statement that his Nobel Prize belonged to Austria. Though the nature of Kandel’s work affords him the identity of *amerikanischer Wiener* since it connects him to pre-Anschluss Vienna, Kandel still insists on attaching the adjective “American” to the receiving noun “Nobel Prize.” Kandel’s insistence upon this distinction is a reaction to the way Vienna so unjustly scorned the scientists in Hitler’s Vienna. Since Kandel was unwilling to share the acclaim from his scientific work with Vienna, he had to explore other non-scientific avenues, such as the symposium, in order to complete the process of *Vergangenheitsbewältigung*. The symposium was effective in establishing a discourse that clarifies the facts and leads to a mutual understanding and acceptance between the Jewish and non-Jewish Viennese citizens. While the lectures represented an important first step towards *Vergangenheitsbewältigung* on a societal level, they will likely show very small results in the way of rebuilding the Viennese Jewish population. To Kandel’s dismay the intervening decades since the Holocaust have seen only very small increases in Vienna’s Jewish population and the Jewish community is only scarcely represented in Viennese academia.

One reason that accounts for the lack of growth in the Viennese-Jewish community is the lackluster support that the Jewish community receives from the Austrian government. At the time of Kandel’s symposium in Vienna, the IKG, the Jewish social service agency in Vienna, was nearly bankrupt (Kandel, *In Search of Memory* 410). Originally Kandel sought to help save

the agency on moral grounds, hoping that lending aid to an agency that fought to strengthen the Jewish community would help reconcile his uneasy feelings towards Vienna. However, in the following months Kandel realized that he in fact had a personal obligation to the IKG when he found documents that showed that the IKG had granted requests from Kandel's father to finance the family's transportation to the United States (Kandel, *In Search of Memory* 411). This revelation was unexpected and aided greatly in Kandel's process of coming to terms with his experiences in Vienna. By saving the livelihood of an agency that saved his own life, Kandel felt fulfilled and more at peace with his past.

The symposium that Kandel helped organize on "Austria's Response to National Socialism: Implications for Scientific and Humanistic Scholarship" was a major step forward in his own personal process of *Vergangenheitsbewältigung*. The conference allowed him to engage in Freudian-style "talk-therapy" through his speeches on his experiences in Vienna. Even beyond the official events of the symposium, the experience in Vienna was invaluable for the progress of Kandel's struggle to come to terms with the past by providing the resources and opportunities that science could never offer. The lectures from the event were compiled and published in the volume *Österreichs Umgang mit dem Nationalsozialismus*, which was cited extensively in this text. *Österreichs Umgang mit dem Nationalsozialismus* serves a particularly pertinent resource by providing direct support to the connection between Kandel's chosen course of research and the lived human experiences in Vienna that led him to that field.

Kandel's process of *Vergangenheitsbewältigung* was decades long and quite complex, reflecting his own complex and ambiguous emotions towards Vienna. While Kandel began the process of coming to terms with his Viennese past through his scientific work as an *amerikanischer Wiener* he was only truly able to reconcile with his memories of the city through his non-

scientific work, by organizing the symposium and his humanitarian efforts with the IKG. Finally, after six decades and the healing “talking-cure” the conference provided, Kandel was able to stand outside of his old Viennese apartment and feel “amazingly at peace [in Vienna]: so glad to have survived, and to have emerged from that building and from the Holocaust relatively unscathed” (Kandel *In Search of Memory* 415).

Like Kandel, Djerassi also found it necessary to turn away from science in order to truly come to terms with his Viennese roots. As Djerassi reiterated in his speech “Nach 70 Jahren: Wiener Amerikaner oder amerikanischer Wiener?”, as a scientist he felt more like a *Wiener Amerikaner* while as a writer he felt reconnected to the city as an *amerikanischer Wiener*. Djerassi then used his newly found status as an *amerikanischer Wiener* writer to craft literary allusions to his own process of *Vergangenheitsbewältigung*.

Djerassi composed several novels and plays that employ Vienna or Jewish identity as a thematic element, but one play in particular allows Djerassi to directly discuss his identity as a Viennese Jew: *Four Jews on Parnassus: a conversation: Benjamin, Adorno, Scholem, Schönberg*. Djerassi chooses these four prominent Jewish writers and artist as characters to discuss his own thoughts towards their lives and their philosophies. Djerassi himself is the unofficial “fifth Jew”, whose overarching presence guides the conversation in a way that reflects his own curiosities about his Jewish identity. The four protagonists each have a different relationship to their Jewish identity, therefore they each have a different perspective on what it means to be Jewish and what it meant to be Jewish during and after the Holocaust. Djerassi admits that in the time directly following his exodus from Vienna, he was not keen on discussing his relationship to Judaism, “not unlike Adorno upon his arrival to the U.S.” (Djerassi, *Four Jews on Parnassus...* 108). Therefore, when Djerassi began to reconnect with his Viennese past as a writer there

“arose questions about Jewish identity that [he is] attempting to answer through the putative words of Adorno, Benjamin, Scholem and Schönberg” (Djerassi, *Four Jews on Parnassus...* 108). Coincidentally, Adorno wrote extensively about the concept of *Vergangenheitsbewältigung*, making him an appropriate character to discuss the meaning of Jewish identity before and after the war. By assuming the voices of these four towering Jews, Djerassi was able to create a narrative through which to explore and reconcile his own memories.

In the fourth chapter of Djerassi’s play, aptly titled “Four Jews”, the four protagonists deliberate on questions that Djerassi seeks to answer in his own life. The discussion begins with each Jew’s musings on what it means to be Jewish since “‘Jew’ clearly doesn’t refer only to religion” (Djerassi, *Four Jews on Parnassus* 110). In Djerassi’s life religion was only a minor aspect of his Jewish identity. As Djerassi notes in his autobiography, *The Pill, Pygmy Chimps and Degas’ Horse* the only semblances of Judaism in his life were his nightly prayers in childhood and his bar mitzvah, which he completely shortly before he left Vienna for Bulgaria (Djerassi, *The Pill, Pygmy Chimps...* 12). However, despite Djerassi’s lack of religious observance, he still identifies himself as Jewish. Ironically, the only thing that Djerassi’s four self-proclaimed Jews have in common is that “none of [them] follows all 613 biblical commandments...one definition of an Orthodox Jew” (Djerassi, *Four Jews on Parnassus* 110). Since a religious definition of Jewish did not suit any of the four Jews or Djerassi, the protagonists began to explore other definitions of Jewish identity.

Upon his arrival in the United States, Djerassi struggled with his memories of Vienna and thus transformed his identity into a *Wiener Amerikaner* in order suppress the memories of his childhood. However, in addition to suppressing his identity as a *Wiener*, he also suppressed his Jewish identity, “flaunting or even hinting at my Jewish origin was far from my mind” (Djerassi,

Four Jews on Parnassus 108). Adorno's attempts at assimilation were even more extreme than Djerassi's. When Adorno became a naturalized American citizen he changed his name from "Theodor Wiesengrund" to "Theodore Adorno" in order to not "stoke American prejudice against German Jews" (Djerassi, *Four Jews on Parnassus* 122). Adorno's name change served to discredit the group's hypothesis that a name is the indicator Jewish identity. The four Jews and Djerassi deliberated on other indicators of Jewish identity such as appearance, or the mere accusation of Jewishness by an anti-Semite, but none of these definitions satiated the group's desire to articulate the ineffable force that made them "Jews." Djerassi then pinpointed, via Scholem, that by writing and asking the questions he was engaging in the essence of what it meant to be Jewish. Djerassi realized through this dialogue that the reason he still felt Jewish is that Jewish identity is not defined by an outward sign but rather "a Jew is someone who continues to ask himself what it means to be a Jew" (Djerassi, *Four Jews on Parnassus*... 119). As a Viennese Jew the idea of *Bildung* is engrained in Djerassi's mind, the idea of the continued pursuit of culture and education. However, what Djerassi can take away from the dialogue of the four Jews is that the pursuit of *Bildung* he learned in childhood is what makes him Jewish. The act of engaging in his inquiry into his Jewish identity served to reaffirm it and allowed him to cope with yet another aspect of his Viennese past.

Djerassi's connection to Vienna continued to be strengthened when his "science-in-fiction" writings began to be published in the German-speaking world. During the five decades between 1940 and 1990 when Djerassi was working as a successful *Wiener Amerikaner Chemiker* the remnants of his Viennese past rarely resurfaced in everyday life. Specifically, most of his German language skills lay dormant in his memory. However, Djerassi's transformation into a writer and thus an *amerikanischer Wiener* ushered in a reintroduction to the German language as

Djerassi's works began to be published in the German-speaking world. Djerassi recalls in his autobiography *This Man's Pill* that:

“the last novel that I read in German was Arthur Koestler's *The Gladiators*; I was 18 or 19 years old at the time. Half a century passed before I read another novel in German, this one with an attention I had never given a work of fiction. As I turned the pages of Ursula-Marie Mössner's translation of my own novel, *Cantor's Dilemma*, long-forgotten German idioms surfaced from some Viennese depth that I had assumed had long ago been covered by an impenetrable thicket of Americanisms.” (Djerassi, 168)

For Djerassi, the experience of translating his first novel into German brought to his attention that his process of *Vergangenheitsbewältigung* was not yet complete. Though Djerassi began to identify himself as an *amerikanischer Wiener* when he began writing, the process of translating his written work into German helped him come to terms with his Viennese past and solidify his new main identity as a *Wiener*.

In order to translate *Cantor's Dilemma* into German, Djerassi worked with Ursula-Marie Mössner, a German translator. Only through discussing the translation of his text with Mössner did Djerassi discover that “in spite of [his] silver hair, my German had never grown out of its teens” (Djerassi, *This Man's Pill* 169). Djerassi would suggest minor changes to the translation of the manuscript in order to maintain precision, only to realize that his German dated him and that he must have full faith in Mössner's ability to serve as his German alter ego. Throughout Djerassi's book tour in Berlin and several other German cities after the German publication of *Cantor's Dilemma*, he slowly regained confidence in speaking German extemporaneously. Djerassi's German improved by the hour and the audience seemed very receptive to his Austrian-accented, slightly American voice. Djerassi's speaking engagements in the German-speaking world have

allowed his language skills to mostly return, “poking holes in the psychic barrier that, prior to the mid-1980s, [he] had assumed had set into impenetrable concrete” (Djerassi, *This Man's Pill* 169).

Djerassi's endeavor into “science-in-fiction” writing ultimately proved to be the reuniting force that forged a new bond between Djerassi and his Viennese past. Through his writing on Viennese themes as an *amerikanischer Wiener* and the experience with German translation that reunited him with his German language skills, Djerassi had completed his personal struggle of *Vergangenheitsbewältigung* and had come to terms with his Viennese past. Ironically, this “recovery of [his] central European roots did not occur in Austria, the country of [his] birth and early education, but rather in Germany. This was the country, after all, that had severed those roots in the first place...It took a modern German voice, and a woman's voice at that, to bring [him] to terms with [his] European origins” (Djerassi, *This Man's Pill* 170). While it is unusual that the same country that expelled Djerassi from Vienna eventually reunited him emotionally with the city, the publication of his fiction in German transformed Djerassi from a “visiting American” into an *amerikanischer Wiener*.

Chargaff's transformation from a *Wiener* to a *Wiener Amerikaner* to an *amerikanischer Wiener* is less defined than the transformations of Kandel and Djerassi since Chargaff left and returned to the city several times in the 1920s and 30s for financial and safety reasons. Also, unlike Kandel and Djerassi, Chargaff did not live in Vienna in the time of the Anschluss, so he does not have one vivid overpowering memory of violence associated with the city. However, like the other two scholars, Chargaff also went through a long and complex process in order to reconcile with his memories of Vienna. Chargaff's process of *Vergangenheitsbewältigung* can be seen through the themes he employs in his intellectual essays that he composed after he turned away from his scientific career.

Like Djerassi and Kandel, even a very productive scientific career left Chargaff feeling unfulfilled. However, in contrast to Kandel and Djerassi, Chargaff abandoned his scientific research as a sign of moral protest against the “nauseating terror [of] the direction in which the natural sciences were going” (Chargaff, *Heraclitean Fire* 3). Chargaff worked for 50 years as a chemist and biochemist and despite his groundbreaking discovery of “base complementarity” he had received little recognition from his academic peers. In the 1970s, as a result the deteriorating state of scientific research and lack of acknowledgement Chargaff received, he decided he no longer wanted to pursue scientific research. His ultimate decision to leave science was a delayed reaction to the horrific events of World War II. Chargaff recalls when the atomic bombs fell on Hiroshima and Nagasaki that he perceived this event as “the end of the essence of mankind; an end brought nearer, or even made possible, by the profession to which I belonged” (Chargaff, *Heraclitean Fire* 3).

Chargaff then turned to semi-philosophical writing as his medium of intellectual output. However, he did not decide to take up writing as a mere whim, rather the transformation allowed him to realize a boyhood aspiration that been suppressed for decades by his work as a researcher. As a young man, Chargaff understood the importance of continuing his work in chemistry, as it was a profession that could “feed and sustain [him]”, but the his inner voice of reason advocating for the practicality of his profession could not entirely overshadow his artistic desires:

“[He] thought of [himself] as a writer. [He] had written a great deal; a little of it had been published...Had [he] not left Vienna, tearing [himself] away from the German language and, even more, had not the entire world collapsed into the most bloody barbarism under the leadership of that very same German language, there might have been one more mediocre German writer.” (Chargaff, *Heraclitean Fire* 36)

Therefore, becoming a writer served a dual purpose: one of personal fulfillment and one of scientific fulfillment, although both aided in Chargaff's process of *Vergangenheitsbewältigung*.

Chargaff's intellectual essays and novels provided an important outlet for his personal thoughts and creativity, free of the confines of scientific parameters. He could finally become a writer as he had envisioned himself in his younger years, only now he had decades more of experience to address as topics in his works. Chargaff began to write as a therapeutic tool to lend a narrative to a lifetime's worth of memories, emotions and criticisms. He was able to reflect on memories of his experiences in Vienna and lament how these experiences were cut short by the "rootlessness" of his youth imposed by ever approaching economic shortcomings or political turmoil (Chargaff, *Heraclitean Fire* 40). Chargaff recalls fondly his first return visit to Vienna while completing his postdoctoral fellowship at Yale. He and his fiancée, Vera Broido, attended *Die Zauberflöte* at the opera, one last pleasant memory of Vienna to savor before he was "torn away" and returned to America (Chargaff, *Heraclitean Fire* 45-46). Only two years into his postdoctoral fellowship at Yale, the two decided that they did not want to remain in America any longer. They "longed for Europe" once again (Chargaff, *Heraclitean Fire* 45). The mere memory of the opera was not enough. Chargaff and his wife were able to save just enough money for their return to their home, Vienna (Chargaff, *Heraclitean Fire* 46). Unfortunately for Chargaff and his new bride, economic pressures did not allow them to stay. Chargaff could not find employment and the two had to leave their home for Berlin in 1930, "which had always been the place where desperate Viennese threatened to go" (Chargaff, *Heraclitean Fire* 47). The transiency of Chargaff's life did not improve in the next decade, even as economic pressures lingered at bay, he was forced to return to the United States due to the growing strength of the Nazi party. Unlike Kandel and Djerassi, Chargaff did not see firsthand the violence of the Anschluss. In-

stead, he could only wait powerlessly for news of violence in Vienna. For this reason, Chargaff's method of *Vergangenheitsbewältigung* manifests itself differently in his writing. He is more objective, having observed most of the violence while in the United States instead of experiencing it in Vienna. Chargaff's absence during this pivotal time causes him to express a longing for the city that is absent from Kandel and Djerassi's writings. While the younger two men were traumatized by their forced exodus, Chargaff was pained by his forced absence from his home, thus he had to come to terms with the "rootlessness" of his life. Despite the different nature of his struggle to cope, Chargaff's process of coming to terms with his past took many decades and required that he abandon science and express the frustrations of his past through writing.

Chargaff's constant use of Vienna as a motif in his writing suggests that he needed to present his memories of the city in a narrative, much like Djerassi, as a form of Freudian "talk-therapy" in order to cope with his personal memories of the past. In his 1986 text *Serious Questions: An ABC of Skeptical Reflections*, Chargaff frequently mentions Vienna, the Holocaust or his revulsion to modern science. Unlike Kandel and Djerassi, who reflect directly on their experience in the Anschluss through their own personal narrative, Chargaff masks his attitudes towards Anschluss Vienna and the Holocaust behind one of his "ABCs" of skeptical reflections. The actual letters that serve as the title for each chapter in the book stand for words such as A for Amateur, B for Beauty, etc.... Through Chargaff's "ABCs" he reflects on the downfalls of Charisma, the meaning of Death, the commercialization of the Holocaust and so on.

Chargaff's chapter on the Holocaust serves a dual purpose to criticize the commercialization of the tragedy, and lend support an overarching theme of the novel by criticizing the misuse of science that allowed for much of the violence. Chargaff remarks that there are "Professors of Holocaust Studies" and eventually there will be a "Holocaust Society" and the "Holocaust Ball"

in support of scholarships” (Chargaff, *Serious Questions* 85). While the study of the Holocaust is intended to ensure that world will “Vergiss nie!” and therefore history will not repeat itself, Chargaff fears that farfetched extension of this idea, such as a “Holocaust Ball” or “Holocaust Society” will desensitize mankind to the horror of such genocides (Chargaff, *Serious Questions* 85,86). Chargaff even fears the “cover-up term” Holocaust, since it provides a word to denote a type of mega-massacre that “lies outside the community of men” (Chargaff, *Serious Questions* 85). However Chargaff’s analysis of nomenclature is far from a benign exercise in semantics, he is emphasizing the inherent power in words beyond their meanings. For example, when Hitler used the term “Final Solution,’ everybody knew exactly what was meant. And what was meant was to persuade a nation (it did not, I am afraid, require much persuasion) that an entire people or race or clan was a pest, a *Schädling*, that to be exterminated” (Chargaff, *Serious Questions* 86). The power of persuasion inherent in words ultimately did allow the scientific and mechanistic killing of races of people as if they were pests to be eliminated.

Chargaff’s musings on the Holocaust in *Serious Questions* also helps clarify his own reasons for leaving the sciences while providing a therapeutic critique of the state of modern scientific research. Chargaff’s aversion to modern science stems from several aspects of the field. Firstly, he criticizes the scientific method and how concepts of science are manipulated to justify and mechanize violence. Secondly, Chargaff is appalled by the misapplication of scientific technologies in the war theater. More specifically, Chargaff analyzes how the ramifications of scientific discovery and the scientific method played integral roles in the violence that his fellow Jews and others experienced during World War II.

As Chargaff can attest, a mechanistic approach is necessary in scientific research in order to ensure accuracy and replicability. However, this type of methodical approach was misapplied

in pseudo-scientific endeavors during World War II and led to massacring of millions of people. For example the pseudo-scientific field of eugenics “was the outgrowth of the same kind of mechanistic thinking that, in an outwardly very different form, contributed to what most people would consider the glories of modern science” (Chargaff, *Heraclitean Fire* 5). When employed by scientists in a laboratory the result of this type of thinking is scientific discovery, when employed by a “dominant race” to deal with an “inferior” minority, the result is disastrous (Chargaff, *Serious Questions* 89). Although the bombings at Hiroshima and Nagasaki resulted in relatively fewer deaths compared to the Holocaust, the same type of “scientific” mechanistic thinking was applied in order to justify the violence. Politicians and generals justified their tactics by framing the Japanese as a problem to be solved or a pest to be eliminated: “Once you succeed in converting people into beetles, you may proceed scientifically, in strict order and with all the refinements of the exterminator's art” (Chargaff, *Serious Questions* 87). Therefore the military proceeded to “solve” the problem of the Japanese by using a mechanistic approach and scientific technologies. Regardless of whether scientists, politicians or army generals are at fault for the deaths of Japanese citizens at Hiroshima and Nagasaki, science made the massacre possible. It was science that created the technology of splitting the atom, and scientific thinking that allowed the military to dehumanize the enemy and proceed mechanistically with their destruction.

Chargaff does not explicitly blame scientists for the applications of their discoveries, however he does raise the question of “Who is to blame for the mass destruction made possible by technology?” Chargaff gives the example of a “triumph of pure science: the atom bomb...[The] splitting of the atom was truly a triumph of experimental physics if there ever was. So if we want to divide 100,000 by x , who goes into that x ? Newton, Einstein, Hahn, Fermi?” (Chargaff, *Serious Questions* 88). When discussing the technologies used for destruction in the

Holocaust, Chargaff feels a twinge of guilt that he has not been able to shake through the decades. Not only were his fellow Jews at the mercy of science, as the victims of chemical gassing, they were at the mercy of chemistry, his own science. With no regard for humanity or the intended applications of chemical technologies, the Nazis “made use of achievements of the chemical industry as regards pest control and fumigation with *Blaukreuz* gas” in order to kill millions of Jews, including Viennese Jews (Chargaff, *Serious Questions* 89). Therefore, by employing mechanistic mass killing techniques and pseudo-scientific racial classification through eugenics to groups like the Jews and Gypsies, the National Socialists were able to dehumanize and murder in the name of science.

Some of Chargaff's statements about scientists' culpability in World War II are intentionally hyperbolic, however his examples are quite accurate in pinpointing the ethical dilemmas in the scientific field that caused him to leave biochemical research. Essentially, it appears to Chargaff that science is to blame for the violence experienced by himself and his co-religionists. Chargaff admits that in 1945 he was naïve, and did not fully comprehend the ramifications for the scientific field that would result from the horrors of World War II. During the war science had “incurred a guilt of which it will never get rid” (Chargaff, *Heraclitean Fire* 4). After a few decades of contemplation, Chargaff fully understood the monstrosity that science had become that showed no resemblance to “the kind of science envisioned by me when I made my choice... The year 1945 changed my entire attitude toward science or, at any rate, the kind of science that surrounded me” (Chargaff, *Heraclitean Fire* 130, 5). Therefore, upon further reflection about the nature of his work and given the fact that his peers did not acknowledge his discoveries, Chargaff decided to leave scientific academia. His decision to abandon scientific research also led him to a field that provided him a creative outlet through which he could cope with his past, un-

like his scientific career that held him immobile in the process of *Vergangenheitsbewältigung*, as he associated scientists with his Nazi oppressors.

As a writer, Chargaff has made great strides in coming to terms with his past. His essays provide an outlet for his cathartic analyses, in which he can discuss his memories of his childhood and his aversion to modern day science. In his writings, he frequently mentions Vienna and its prominent figures such as Sigmund Freud, and the Viennese writer Karl Kraus. By identifying himself with Vienna and these other prominent figures, Chargaff is attempting to reconcile with his Viennese past through an intellectual and literary connection, much the way Kandel attempted to reconnect with the city through his association with Freud and his work. Like Djerassi and Kandel, Chargaff's process of *Vergangenheitsbewältigung* took many decades and a departure from science to truly be realized. Though Chargaff's scientific work was very important to the field of biochemistry and the later discovery of the double-helix, this research left Chargaff unfilled, and no closer to reconciliation with his Viennese past. As a writer, he was able to reflect on his own life as a scientist, a *Wiener*, an *Amerikaner*, and a Jew and thus ultimately come to terms with his past.

Conclusions:

Vienna is well-known to the world for its beauty and culture, but these positive qualities cannot entirely overshadow Vienna's volatile relationship with the Jews over the past millennium. Specifically, the events of the Anschluss and the subsequent attempted annihilation of Europe's Jews had an unforgettable impact on the way the Viennese Jews perceive Vienna. But ultimately this experience did not erase their bond with the city. The three scientists – Eric Kandel, Carl Djerassi, and Erwin Chargaff – exemplify this idea that because of, or perhaps, in spite of the Anschluss, the memories of the city that Viennese Jews carried with them continued to shape their lives long after their departure. Like other Viennese Jews that were affected by the Anschluss, the scientists still maintain an enduring attachment to the city that their traumatic memory of the Anschluss and years in America could not erase.

The biographies of the three scientists discussed here lend themselves to comparison since all three were Viennese, Jewish, and eventually turned away from science in order to reconcile with his Viennese past. However, each scientist experienced Vienna to a different extent. Chargaff, born in 1905, was already a grown man when he left Vienna in 1928 to assume a post-doctoral fellowship at Yale. Djerassi was 14 when he left Vienna in 1938, and Kandel was only 9 years old when he made the journey to America. Therefore, the scientists' fondness transcends the isolated events of the *Zwischenkriegszeit*, since Chargaff and Kandel both exhibit a strong bond with Vienna, even though Chargaff lived in Vienna until adulthood and Kandel left when he was a young child. The age discrepancy between each scientist when he left Vienna for the United States also indicates that their connection to Vienna is not merely the result of the formative nature of childhood, as Freud's theories would suggest. But rather, there is an inexplicable

quality that draws these men to Vienna that has transcended the hostility they experienced there and the violence towards their co-religionists.

Regardless of whether each scientist documents their transformations, each experienced a metamorphosis of identity in the years following their departure from Vienna. All three scholars were born a *Wiener*, but felt disconnected with this identity after they were forced to leave the city because of the violence of the Anschluss, or in Chargaff's case the impending threat of Nazi violence. Following their departure each scientist became a *Wiener Amerikaner*, since the prospect of safety and success in the United States caused them to morph their identities to escape the fear they associated with their past identity. However, none of the scientists could bear to deny his Viennese identity indefinitely. Therefore, each scholar began to make strides to come to terms with his past and become an *amerikanischer Wiener*.

As I have argued throughout this thesis, the three scientists' bond with the Austrian capital and their need to turn away from science to reconcile their relationship with city are both the result of the collective cultural history of Jews in Vienna. The relationship between Jewry and Vienna has oscillated between the extremes of great prosperity and brutal violence over the last millennium. However, despite the violence and anti-Semitism, Vienna has represented a place of progress. The city was a place where bankers and merchants could succeed and Jewish children could grow up in a atmosphere conducive to the Jewish ideal of *Bildung*. And although there were great Viennese scientists in the 19th and 20th centuries, the idea of *Bildung* was traditionally associated with literature, art and theater. For this reason Kandel, Djerassi and Chargaff each turned away from science to explore other avenues that were fulfill their Viennese perception of *Bildung* and aid in their process of *Vergangenheitsbewältigung*.

The connection between a Viennese Jewish past and scientific and artistic success elucidated here has far-reaching implications that are beyond the scope of this thesis. As Kandel noted in his autobiography, *In Search of Memory*, he believed that the combination of an education in Vienna and the feeling of freedom he experienced when he arrived in the United States had a synergistic effect that allowed Kandel “to think in new ways” (Kandel, *In Search of Memory* 33). However, it is possible that this synergistic effect is not localized to a career in America or even a post-Anschluss feeling of liberation. What if the of the pursuit of *Bildung* itself was the catalytic factor that led to the creative thinking behind the discoveries of Kandel, Djerassi, Chargaff, Freud and even the famous Viennese writers and painters? It is no coincidence that Vienna has continued to be a cultural center in Europe in spite of the events of the 20th century since the pursuit of *Bildung* is a self-propagating system that leads to generation after generation of prominent Viennese artists and scientists to in turn inspire the subsequent generation. What universities in America and across Europe are trying to achieve through a liberal arts education, the Jews in Vienna already achieved through the ideal of *Bildung* that is instilled in Viennese children since birth.

Kandel, Djerassi and Chargaff were unique in that they introduced new discoveries in their fields of science and that they all ultimately turned away from science. But perhaps their creative energy is not so much unique as it is the optimal result of the upbringing in Vienna. Though exploration of the autobiographies of prominent Jewish Viennese writers and artists is beyond the scope of this thesis, it would be interesting to discover whether they attribute their success to their upbringing in Vienna. Despite centuries of tribulations in Vienna the Jews have maintained an inexplicable fondness for the city. Vienna may have shown the Jewish community

times of intense cruelty, but through the opportunity for *Bildung* it allowed for the greatest success.

Bibliography

- Anton Pelinka. "The Great Austrian Taboo: The Repression of the Civil War." *New German Critique* 43 (1988) : 69-82. Web. 1 Apr 2011.
- Berkley, George E. *Vienna and Its Jews* : Cambridge, MA : Abt Books ; Lanham, Md. : Madison Books, 1988. Print.
- Chargaff, Erwin. *Heraclitean Fire: Sketches from a Life Before Nature*. New York: Rockefeller University Press, 1978. Print.
- . *Serious Questions : An ABC of Skeptical Reflections*. Boston: Birkhäuser, 1986. Print.
- Djerassi, C. *The Pill, Pygmy Chimps, and Degas' Horse : The Autobiography of Carl Djerassi*. New York: BasicBooks, 1992. Print.
- . *This Man's Pill : Reflections on the 50th Birthday of the Pill*. Oxford ; New York: Oxford University Press, 2001. Print.
- Djerassi, C (Author). *Nach 70 Jahren: Wiener Amerikaner Oder Amerikanischer Wiener?* Göttingen Vienna Univ. Press, V & R Unipress, 2009. Print.
- Djerassi, C, and Gabriele Seethaler. *Four Jews on Parnassus : A Conversation : Benjamin, Adorno, Scholem, Schönberg*. New York: Columbia University Press, 2008. Print.
- Kandel, Eric R. *In Search of Memory : The Emergence of a New Science of Mind*. 1st ed. New York: W. W. Norton & Company, 2006. Print.
- Keller, Evelyn Fox. "Review: Dark Side of Science." *Change* 11.1 (1979) : 59-60. Print.
- LeDoux, Joseph E, Jacek Debiec, and Henry Moss. *The Self : From Soul to Brain*. New York: New York Academy of Sciences, 2003. Print.

Lubich, Frederick. "Surviving to Excel: The Last German Jewish Autobiographies of Holocaust Survivors Ruth Klüger, Marcel Reich-Ranicki, and Paul Spiegel." 25.2 (2005) : 189-210. Web. 4 Apr 2011.

Stadler, Friedrich. *Österreichs Umgang Mit Dem Nationalsozialismus: Die Folgen Für Die Naturwissenschaftliche Und Humanistische Lehre: Internationales Symposium 5.-6. Juni 2003, Wien / Kandel, Eric R.* Wien ; New York: Springer, 2004. Print.

Tietze, Hans. *Die Juden Wiens: Geschichte, Wirtschaft, Kultur.* Leipzig [u.a.]: Tal, 1933. Print.

Wistrich, Robert S. *The Jews of Vienna in the Age of Franz Joseph.* Oxford ; New York: Published for the Littman Library by Oxford University Press, 1989. Print.