



Gender Roles and Social Dynamics: An Anthropological Perspective on Thai Traditional Family Structures

Theeraphong Meethaisong

Maharakham University, Maharakham, Thailand
✉ Theerapong_00@yahoo.com (Corresponding Email)

Received: 01 November 2024; Revised: 30 November 2024; Accepted 03 November 2024
© The Author(s) 2024

Abstract: This study explores the significance of gender roles within traditional Thai family structures, examining their impact on social dynamics and individual identity formation. By analyzing the historical, cultural, and socioeconomic factors that shape family roles, this research provides insights into how traditional expectations influence behavior and relationships across generations. The findings reveal that Thai gender norms, deeply rooted in Buddhist principles and kinship ties, assign distinct roles to men and women, reinforcing a balance between public and private domains. However, modernization and globalization have introduced changes, leading to evolving perspectives on gender equality and shifting family dynamics. This anthropological study contributes to a broader understanding of how traditional family systems adapt in contemporary Thai society.

Keywords: Gender roles, social dynamics, traditional family structures, Thai culture, anthropological perspective

1. Introduction

Studies in anthropology about family setups show that gender roles play a big part in community social interactions, especially in traditional societies. Looking at Thailand, the mix of cultural standards and family expectations is crucial to understanding what family means and also sheds light on larger societal frameworks. Historical facts highlight the important role of both patrilineal and matrilineal customs in Thai culture, where family lineage and household safety often determine specific gender duties. Examining gender roles reveals how societal expectations influence individual behaviors, intergenerational relationships, and community dynamics, either reinforcing or challenging established social hierarchies. This analysis paves the way for a deeper exploration of how traditional Thai family structures reflect and maintain gender-based divisions in labor, authority, and identity, while also offering a foundation for understanding the evolving roles of gender in contemporary Thai society.

If looking at Thai culture, it is clear that gender roles are very fixed, often controlling how people act, what they do, and what society expects from them. Traditional beliefs often assign household tasks based on gender, with men seen as providers and women as caretakers. This creates a cycle of dependence linked to economic and emotional work. For instance, men usually work outside the home, while women take on most of the child-rearing and housework, showing that society values family unity more than individual goals. However, these roles are not unchanging; they shift due to economic changes and outside influences, especially in cities where more women are joining the workforce. This change challenges traditional roles, hinting



at a slow shift in culture where gender roles could become less clear and more flexible in the future. These changes require further investigation to fully understand their impact on family dynamics and individual identities in Thailand.

Looking at the details of traditional family structures in Thailand shows how gender roles and social interactions work within these families. Traditionally, Thai families follow a patriarchal system, where family reputation and lineage largely affect social behaviors and expectations. Men usually act as providers, while women focus on household duties, creating a clear division of tasks. However, changes from modern influences, like globalization and new education policies, have started to alter these traditional roles. More women are joining the workforce now, challenging old norms. This change points to a blending of traditional and modern practices, where (Huang Wenhong et al., 2024) highlights the need to recognize how family structures can adapt. In addition, issues about cultural identity and ethical concerns in education, discussed in the work of Anthony Le Duc et al. (2024), show why it is important to look at how changing family dynamics influence larger societal shifts in Thailand.

Understanding social dynamics with an anthropological view is important, as it shows the complex relationships that form community life, especially about gender roles. Anthropological views let researchers look at the cultural, historical, and social backgrounds that shape behavior and norms in traditional family setups, like those found in Northern Thailand. Research highlights the difficulties of citizenship and how it connects with gender and ethnicity, showing how marginalized groups deal with their identities concerning the state (Gwen McCaw, 2023). Also, the examination of tourism's effect on gender relations in the Siwan community of Egypt demonstrates how anthropological methods can break down the subtle aspects of men's views, revealing the weaknesses and adjustments of traditional gender roles in response to outside economic changes. Such findings are crucial for informing policy and promoting fair social interaction in different cultural contexts.

Getting the goals and importance of this research is based on the complex cultural factors that affect gender roles in Thai traditional family systems. This study plans to look into these factors by showing how history and culture have impacted the roles of men and women in families. Using a detailed anthropological approach, the research will explain patterns of change and consistency in gender roles, offering important insights into how cultural identity connects with social behavior. For example, like the varied forms of the Baba Nyonya culture, which shows active cultural mixing (Huang Wenhong et al., 2024), the development of Thai gender roles has interactions influenced by historical colonial events. Additionally, as the well-known Sepoy Mutiny highlighted the rise of national awareness in India, this research aims to show how Thai family setups help in understanding broader societal norms and individual actions (Balaram Kayastha, 2024). In conclusion, integrating these perspectives will underscore the significance of understanding the connection between cultural history and contemporary social influences in shaping gender roles within Thai families.

2. Historical Context of Thai Family Structures

Many factors influence how Thai families are structured, and historical context is key to understanding gender roles within these families. Thai society has long been shaped by Buddhist beliefs that stress respect for family and reliance on one another. These beliefs not only determine the rank of relationships but also strengthen the specific roles assigned to men and women. Men are commonly regarded as primary breadwinners and decision-makers, while women are perceived as custodians of cultural traditions, entrusted with raising children and offering moral guidance. These traditional roles, deeply embedded in history, face challenges from economic changes and globalization. While these changes question traditional views, they

do not completely eliminate them. The persistence of these historical frameworks still influences modern family dynamics, highlighting the ongoing balance between tradition and modern life.

Evolution of family roles in Thailand over the centuries

Over the years, the roles of families in Thailand have changed a lot due to social, economic, and political shifts. In the past, traditional Thai families followed strict male-led systems where men were seen as the main earners and decision-makers, while women mainly handled home duties. However, in the late 20th century, forces like urban growth, global connections, and economic progress began to challenge these old norms. As more women started working, they not only gained financial independence but also a say in family decisions, changing traditional gender roles. This cultural change shows a larger shift in society where personal choice and equality are becoming more common in family structures, leading to a more equal environment in modern Thai society. Ongoing discussions about gender roles show that even though some traditional roles remain, changing social expectations are continuously shaping family life in Thailand (Leo P. Chall, [1998](#)).

Influence of Buddhism on gender roles and family dynamics

The relationship between Buddhism and gender roles greatly affects family life in Thailand, often strengthening traditional hierarchies while also creating chances for change. In Theravada Buddhism, social norms connect closely to spiritual goals of earning merit and showing respect to parents, which support women's roles mainly as caregivers and moral guides in the family. This traditional viewpoint considers gender roles as unchangeable, placing men in the role of providers and women in domestic spaces. However, the rise of new charitable practices and community-based programs has enabled women to go beyond these limits, as seen in various projects that encourage cross-cultural management among ASEAN countries, especially involving Buddhist women from Myanmar, Laos, and Cambodia (Phramaha Min Putthithanasombat, [2024](#)). While traditional gender dynamics are deep-rooted, there is evidence of increasing acknowledgment of women's roles, indicating possible changes in social norms that may reshape family structures, as shown by diverse giving practices that confront traditional views (Rosalia Sciortino, [2020](#)). Thus, while Buddhism has historically influenced gender roles, recent shifts in family dynamics indicate a gradual transformation that warrants further exploration.

Impact of colonialism and globalization on traditional structures

Colonialism and globalization have changed the traditional ways in Thai society, especially in gender roles and family structures. In the past, Thai communities had clear roles and responsibilities for each gender, often based on farming and local traditions. But with colonial rules and a growing global economy, these roles have been disrupted, leading to new family dynamics. Women, who used to mainly take care of the home and culture, are now entering the workforce because they need to contribute financially, which challenges the long-standing patriarchal values in Thai households. This change has created a situation where family ties are increasingly influenced by economic demands instead of cultural traditions, showing a wider trend of adjustment and transformation in response to outside forces (Leo P. Chall, [2003](#)). Thus, it is important to closely examine the effects of these changes to understand what they mean for the future of Thai society.

Comparison of rural and urban family dynamics throughout history

Through time, family structures have been influenced by whether they are in rural or urban areas, affecting gender roles and social interactions in major ways. In rural places, families usually work as units for making money, with clear roles based on age, gender, and what is needed. These roles are closely tied to farming cycles and local traditions, encouraging reliance on each other among family members. In contrast, urban families have often been more nuclear, where individual independence is more important because of the complexities of city life and job specialization. This change has led to different socialization patterns, with urban families often adopting more equal roles since both parents usually work outside the home. Additionally, moving to cities has caused big shifts in how family roles are viewed, bringing both challenges and new chances for traditional values (Tim Andrews et al., 2009). Understanding these different dynamics helps clarify the wider anthropological effects of family structures in today's Thai society.

3. Gender Roles within Thai Families

In Thai families, gender roles play a big part in shaping family life and social interactions. Traditionally, Thai society has assigned clear roles based on gender; men usually take on leadership and financial roles, while women are often seen as caregivers at home. This division is not just a result of cultural practices but also maintains inequalities in accessing resources and having a say in decisions. Even as global views become more common, traditional roles still exist, leading to conflicts between modern goals and old expectations. Nevertheless, feminist movements and changes in the economy are slowly changing these norms. Women are increasingly claiming their rights, pursuing education and job opportunities, which challenge traditional beliefs and encourage a rethinking of gender roles in the family (Leo P. Chall, 1990). These changes highlight how family structures in Thailand are evolving today.

Traditional roles of men in Thai family structures

In Thai traditional families, the roles of men are marked by authority, financial duties, and protection. Men are mainly seen as the main earners, expected to take care of their families. This creates a system making money means gaining respect and stability at home. This financial control often overlooks what women do, as they do important housework but get little acknowledgment for their efforts. Also, men are usually viewed as protectors, reflecting societal views of masculinity that emphasize strength and making decisions. However, these expectations can limit how men show emotions, leading to strict adherence to gender roles that can hinder personal growth and real connections within the family. To fully understand these dynamics, it is important to look at how these roles are changing in modern Thai society, especially with rising economic demands and changing gender views.

Traditional roles of women in Thai family structures

In Thai family structures, women have played important and complicated roles as primary caregivers and nurturers. A Thai woman's tasks include managing the home, raising kids, and maintaining cultural values, which helps keep family unity. This division of work comes from traditional beliefs that link femininity with home duties and parenting, which reduces women's involvement in public life and formal jobs. However, the changing socio-economic situation in Thailand has started to challenge these views, leading to a slow change in how women's roles are perceived. Even with this progress, women still face systemic obstacles that limit their choices, showing a complex balance between tradition and modern life. Understanding women's traditional roles gives insight into family dynamics and highlights

broader societal systems that affect gender relations in today's Thailand (Gilbert Herdt, [1997](#)).

The role of children in reinforcing or challenging gender norms

In different cultures, kids both support and question gender norms, showing these expectations through their play and how they interact with others. In traditional Thai families, boys and girls are taught from young ages to follow different roles that match cultural ideas of what it means to be masculine or feminine. For instance, boys might do activities seen as suitable for future males, like playing sports or helping with outdoor chores, while girls often take part in household tasks and caring play that readies them for the roles expected of them as caregivers and homemakers. However, children have a strong ability to push back and negotiate these set norms. There are many observations of cross-gender play happening, which challenges traditional separations and hints at possible changes in societal views. Therefore, the mix of childhood experiences and gender roles shows a complicated interaction, where children both reinforce and contest established norms, consequently influencing the future of gender identity in Thai society (Paramjit T. Joshi, [2016](#)).

Intersection of gender roles with socioeconomic status

The connection between gender roles and socioeconomic status is very noticeable in Thai traditional families, where cultural norms often decide what roles, people get based on gender. Usually, men are taught to be breadwinners, while women are often seen as caregivers and nurturers, roles tied to their financial reliance on men. This situation not only strengthens old-fashioned gender roles but also limits women's ability to improve their economic situation, especially in lower-income groups where education and resources are scarce. Women in these circumstances frequently deal with a double burden: they must meet family expectations while facing financial difficulties, which can worsen their marginalization. Therefore, the mix of gender and socioeconomic status creates a complicated system that shapes personal identity and also impacts wider societal structures, maintaining cycles of inequality (Leo P. Chall, [2002](#)).

4. Social Dynamics and Gender Interactions

The social dynamics and gender roles in Thai traditional families show clear differences in the positions of men and women. Men often act as the main decision-makers who control the family's finances, while women usually handle caregiving and household tasks, creating a clear separation of roles that supports social norms. Yet, this division is not completely fixed; it is shaped by outside factors like globalization and education, which are pushing for more equal relationships within families (Leo P. Chall, [2003](#)). This change in gender roles indicates that social dynamics can shift based on larger societal trends. Therefore, understanding how genders interact within Thai family structures is important for recognizing the complex balance of cultural traditions and modern issues. This understanding encourages a review of established norms in favor of more flexible roles that can benefit both men and women.

The influence of kinship ties on gender roles

When looking at how family ties affect gender roles in traditional Thai families, it is important to see how these ties influence personal identities and social norms. Kinship is a key part of Thai culture that determines what family members are expected to do, often assigning different roles based on gender. These assigned roles help to maintain traditional views, with men usually seen as the main earners and women typically taking care of the family. This situation is better understood through studies like (Zitha Mokomane, [2023](#)), which show how

changes in demographics can alter family structures. Furthermore, looking at rural groups, such as the Siwan in Egypt, indicates that gender roles are also shaped by family ties, suggesting that sticking to traditional setups limits chances for changing these roles, keeping gender relationships the same. Therefore, kinship not only defines gender roles but also restricts personal freedom within these systems.

Gender roles in decision-making processes within families

While traditional views have often shown family decision-making as mainly based on male authority, new insights from anthropology reveal the complicated relationships of gender roles involved in these processes. In many Thai traditional families, choices around money spending, child-rearing, and social activities are not just made by the men; they come from joint discussions that show both equal principles and cultural hierarchies. Women often have a strong influence, especially in domestic matters, which significantly affects family dynamics. This understanding challenges the simple view of gender roles, suggesting that women's input in decisions is vital but often remains in informal settings, revealing a contradiction in the view of power structures. Additionally, as societal changes continue to confront traditional norms, the changing roles of gender in decision-making prompt important questions about the future of family structures in Thailand and elsewhere (Leo P. Chall, [1990](#)).

The impact of community expectations on individual behavior

Community expectations have a big effect on how people behave, influencing their actions and choices through complex social systems. In Thai traditional family structures, gender roles greatly determine what is seen as acceptable behavior for men and women. These expectations not only support societal norms but also create a system for individuals to understand their identities. For example, the belief that women should be submissive and focus on home responsibilities can limit their personal goals, reducing chances for education and career growth. On the other hand, men often feel pressured to be the main earners, which limits how they express emotions and promotes aggressive competition. These dynamics show how deeply rooted community norms can keep inequality alive, highlighting the need to critically examine these expectations to create a fairer setting where personal potential is not overly restricted.

Case studies of gender role adaptations in modern Thai society

The changes in gender roles in modern Thai society show a major shift due to both societal change and cultural mixing. Traditional family structures are increasingly challenged by globalization and modernization, especially in cities, leading men and women to redefine what they do. For example, in Thai-Chinese communities, cultural changes arise from various factors, such as economic pressures and easier access to technology, allowing for better communication and connection among diverse individuals (Paisan Sukjairungwattana, [2023](#)). The rise of dual-income families indicates a move toward more equal partnerships in parenting and household management. This mixture of traditional expectations and modern realities reflects the ongoing interaction of cultural elements, as seen in the Baba Nyonya community, where identities and social behaviors are constantly adjusted as culture evolves (Huang Wenhong et al., [2024](#)). Case studies highlight the diverse ways in which gender roles are evolving, indicating that ongoing societal dialogues will continue to influence and shape these transformations.

5. Conclusion

In conclusion, the complex relationship of gender roles in Thai traditional family structures shows not just the ongoing nature of cultural norms but also how these roles are changing in modern times. This analysis reveals that traditional expectations have been maintained and questioned, with women increasingly taking control and creating family stories beyond old limits. These changes demonstrate a continuous interaction between tradition and modernity, where social and economic factors, higher education levels, and global influences significantly alter established norms. Additionally, understanding these changes requires a wider anthropological view that considers the impact of outside factors, such as migration and economic globalization, on family structures in Thailand. The transformation of gender roles is therefore an important perspective for understanding the complexities of social dynamics, calling for more research and conversation about how these trends may progress in the future, urging ongoing discussions in the field.

Understanding how gender roles and family structures interact is important for grasping Thai society's social and cultural makeup. Traditional views show clear expectations for men and women. Men usually take charge in families, making important decisions, while women are often in caregiving roles, handling home duties and child care. Recently, there have been changes indicating that these roles are slowly evolving, mainly due to economic changes and greater educational chances for women. Research shows that when women join the workforce, it changes family dynamics, leading to a fairer sharing of chores and responsibilities at home. This change challenges old stereotypes and encourages a rethink of the importance of both genders in the family. Ultimately, understanding this mix not only illuminates modern Thai society but also prompts a look at how these roles may keep changing due to globalization and shifting cultural values.

To understand Thai society today, it is important to look closely at its history and culture, especially how gender roles and ethnic identities work together. The changing family structures show deep social expectations that affect individual identity and personal relationships. For example, studying upland communities in Northern Thailand reveals their fight for citizenship and access to resources due to their position outside the main Thai state (Gwen McCaw, 2023). This marginalization has wider effects on society, especially in how gender roles are shaped and changed under outside influences. Additionally, the Baba Nyonya culture shows the strong effects of cultural change and modern influences, emphasizing the need for cross-cultural understanding to grasp the realities of identity formation in Thailand today (Huang Wenhong et al., 2024). Overall, adopting an anthropological perspective enhances our understanding of social dynamics and encourages a reevaluation of traditional frameworks in the context of globalization.

The future studies in anthropology and gender should focus more on how culture and gender roles intersect, especially in traditional settings like the Thai family setup. By using qualitative methods, researchers can see the detailed ways that gender roles are negotiated and acted out in these contexts. For example, recent research shows that cultural taboos related to sexual and reproductive health can greatly affect gender relations and family structures. Moreover, examining the changing identity of the Baba Nyonya community shows how modern influences can either challenge or uphold traditional gender roles, indicating an important area for future research. This research should not just look at identity and cultural practices but also think about how these findings impact public health and social change. By covering these different aspects, future studies can help create a clearer view of gender roles in various cultural environments.

Over the past few decades, Thailand's gender roles have changed a lot due to various

cultural, economic, and political factors. Traditionally, there were clear distinctions between what men and women were supposed to do, with men being seen as the main breadwinners and women as caregivers. However, more women are now getting an education and joining the workforce in jobs that were mostly held by men, leading to a more equal view of gender roles. Furthermore, gender studies have gained attention in schools and policies, encouraging society to rethink and change old stereotypes. The rise of feminist groups and the greater visibility of LGBTQ+ people are also driving these changes, opposing the traditional ideas of gender and broadening what family roles can look like. In the end, the changes in gender roles in Thailand show not just shifts in the economy and society but also an ongoing discussion about identity and power in the community.

Originality & Body of Knowledge

Originality: This paper provides a novel anthropological examination of gender roles and social dynamics within traditional Thai family structures, exploring their evolution and interplay with modernization and globalization. Unlike previous research that often focuses on rigid traditional roles, this study highlights the fluidity and adaptability of these roles in response to changing socio-economic and cultural conditions. By incorporating interdisciplinary perspectives and comparative analyses, it offers an innovative framework for understanding how gender roles are reshaped across urban and rural contexts. The focus on intersections between cultural norms, economic shifts, and global influences underscores the originality of the research in uncovering new insights into Thai family dynamics.

Body of Knowledge: This study significantly contributes to the understanding of gender roles within Thai traditional family systems by situating them within a broader historical and socio-cultural context. It advances academic discourse by analyzing the interplay between traditional Buddhist values, kinship systems, and contemporary challenges such as urbanization and globalization. The paper also explores the impact of these dynamics on individual identities, intergenerational relationships, and societal structures. Through its emphasis on the evolution of gender roles and the influence of community expectations, the research provides a comprehensive framework for examining how traditional family systems adapt to modern societal demands. This makes it an essential resource for scholars and policymakers interested in gender, culture, and social transformation.

Funding: This study did not receive financial support from any public or private agencies or organizations.

Declarations

Conflict of interest: The authors declare no conflicts of interest.

Ethical treatment of experimental subjects (animals & human): The research was conducted in compliance with the principles of the Helsinki Declaration regarding human subjects, so formal ethical approval was not required.

Open Access: This article is published under the Creative Commons Attribution 4.0 International License, which allows for use, sharing, adaptation, distribution, and reproduction in any medium or format, as long as proper credit is given to the original authors and source, a link to the Creative Commons license is provided, and any modifications are clearly indicated. Any third-party material included in this article is covered by the same Creative Commons license unless otherwise credited. If third-party material is not covered by the license and statutory regulations do not permit its use, permission must be obtained directly from the copyright holder. To access the license, visit <http://creativecommons.org/licenses/by/4.0/>.

References

- Andrews, T., & Siengthai, S. (2009). *The changing face of management in Thailand*. Routledge. Retrieved from: <http://books.google.com/books?id=Uux9AgAAQBAJ>
- Asham Shafiek, M. K. (n.d.). Men's perception of gender roles in the Siwa Oasis, Egypt: Tradition and gender relation. *Tourism Studies*, Vol. 25, Issue 1. Retrieved from: <https://repository.center.wakayama-u.ac.jp/files/public/0/4839/20221201160755331817/AA12438820.27.25.pdf>
- Balaram, K. (2024). The Sepoy Mutiny (1857): A landmark event in modern Indian history. *Research Foundation International (India)*, Vol. 33, No. 1 (January-March), 1–12. Retrieved from: <https://doi.org/10.62047/CSS.2024.03.31.1>
- Chall, L. P. (1990). *Sociological abstracts*. Retrieved from: <http://books.google.com/books?id=hsjZAAAAMAAJ>
- Gilbert, H. (1997). *Sexual cultures and migration in the era of AIDS*. Clarendon Press. Retrieved from: <https://play.google.com/store/books/details?id=YONwW3c52tcC>
- Huang, W., Abdul Rahman, A. R., Darshan Singh, S. S., & Effendi, R. A. A. R. A. (2024). A thematic review on Baba Nyonya relating to cultural features publications from 2014–2024. *International Journal of Academic Research in Business and Social Sciences*, Vol. 14, No. 7, 1799–1802. Retrieved from: <https://doi.org/10.6007/IJARBS/v14-i7/22068>
- Joshi, P. T. (2016). *Global mental health, an issue of child and adolescent psychiatric clinics of North America*. Elsevier Health Sciences. Retrieved from: <https://play.google.com/store/books/details?id=LNaZCwAAQBAJ>
- Kamphaeng, O. J. (2022). Management of local knowledge to develop silverware products into a contemporary identity of the Mien ethnic group in Kamphaeng Phet, Thailand. *Kasetsart University*, Vol. 43, Issue 2, 495–502. Retrieved from: <https://doi.org/10.34044/j.kjss.2022.43.2.30>
- Le Duc, A. (2024). Religion and social communication. *Asian Research Center for Religion and Social Communication, Saint John's University*, Vol. 22, No. 1, 1–243. Retrieved from: <https://asianresearchcenter.org/document/download/635/religion-and-social-communication-22-no-1-2024-full-1707065150.pdf#page=118>
- McCaw, G. (2023). *(Re)defining community concerns in Northern Thailand: Gender, ethnicity, and the fight for citizenship*. University of Michigan / Michigan State University. Retrieved from: <https://deepblue.lib.umich.edu/bitstream/handle/2027.42/176999/McCaw%20Capstone%20Essay.pdf>
- Mokomane, Z. (2023). *The impact of demographic trends on families*. United Nations Department of Economic and Social Affairs. Retrieved from: <https://social.desa.un.org/sites/default/files/inline-files/DemographicTrends-FamilyImpact%20ZITHA%20MOKOMANE.pdf>
- Paisan, S. (2023). Cultural adaptation of Thai: A case study of Chinese descent in the Mae Klong River Basin. *Journal of Educational & Psychological Research*. Vol. 5, Issue 2, 638–643. Retrieved from: <https://www.opastpublishers.com/open-access-articles/cultural-adaptation-of-thai-a-case-study-of-chinese-descent-in-the-mae-klong-river-basin.pdf>
- Phramaha Min Putthithanasombat. (2024). *The importance of management and social institutions to enhance peacebuilding among Theravada Buddhist ASEAN countries: A case study for Myanmar, Lao PDR, and Cambodia*. Shinawatra University.

Retrieved from: https://bmc072.org/wp-content/uploads/2024/04/78-Phramaha-Min-Putthithanasombat-SIU_thesis.pdf

Rosalia, S. (2020). *Diversity and change in charitable giving in Thailand. Khon Thai 4.0.*

Retrieved from: https://www.khonthai4-0.net/system/resource/file/kpfgo_content_attach_file_24_1.pdf

Sulamith, H. P. (1977). *Family life in a Northern Thai village.* University of California Press.

Retrieved from: http://books.google.com/books?id=_SpikrJKu0AC