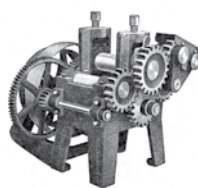


"BY HAMMER AND HAND ALL ARTS DO STAND"

BLACKSMITHING IN CANADA BEFORE 1950

Robert Tremblay David-Thiery Ruddel



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BLACKSMITHING IN
CANADA BEFORE 1950

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Canada Science and Technology Museums Corporation
Société du Musées des sciences et de la technologie du Canada
Ottawa, Canada
2010

Library and Archives Canada Cataloguing in Publication

Tremblay, Robert, 1952-
By hammer and hand, all acts do stand : blacksmithing in Canada
before 1950 / Robert Tremblay and David-Thiery Ruddel.

(Transformation series ; no. 18)
Includes bibliographical references and index.
ISBN 978-0-660-19960-3
Cat. no.: NM33-1/18E

1. Blacksmithing--Canada--History. 2. Blacksmithing--Social
aspects--Canada--History. I. Tremblay, Robert, 1952- II. Canada
Science and Technology Museum III. Title. IV. Series: Transformation

TT220 R83 2010 682.0971 C2010-980049-4

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Printed in Canada

Imprimé au Canada

*"By Hammer and Hand All Arts Do Stand" is the motto of the Worshipful Company of Blacksmiths
of London, England, which King Edward II incorporated by prescription in 1325 CE.*

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ABBREVIATIONS

BANQ: Bibliothèque et Archives nationales du Québec

CMC: Canadian Museum of Civilization

CN: Canadian National

CSTM: Canada Science and Technology Museum

LAC: Library and Archives Canada

MHS: Manitoba Historical Society

NMC: National Museums of Canada

NMM: National Museum of Man (now CMC)

NSM: Nova Scotia Museum

NSARM: Nova Scotia Archives and Records Management

RAPQ : Rapport de l'archiviste de la province de Québec

RHAF: Revue d'histoire de l'Amérique française

RCHTQ : Regroupement des chercheurs (euses) en histoire des travailleurs (euses) du Québec

Abstract

Despite a familiarity with the world of artisans acquired through years of research, we have always been surprised at how little is known of the sociocultural legacy of blacksmiths, and how undervalued their contribution to the development of rural and industrial economies has been throughout history. We thus considered it worth exploring the trajectory of the blacksmithing trade and the evolution of the trade's practices over a long period, from sixteenth-century New France to the 1950s, as well as over a considerable geographical expanse, from the St. Lawrence River Valley and Atlantic Canada to Ontario, and finally, the provinces of Western Canada.

We also wanted to steer clear of certain pitfalls. We did not want, for example, a study which devolved into a romantic vision of these artisans. Instead, we strove to demonstrate that the world of craftsmen was characterized by hierarchies both vertical (master-companion-apprentice) and horizontal (finest quality works vs. basic repairs; versatility and specialization), which often gave rise to social tensions. There was no question of presenting a portrait of the world of artisan blacksmiths which took only harmonious relations between the parties into account—to say nothing of the benevolent paternalism of workshop masters—at the expense of exploring underlying social conflicts.

Neither did we want a book which presented blacksmiths as passive victims of historical change. Instead, we felt it essential to show the extent to which these artisans had been able to develop survival strategies in the face of considerable upheaval, including the rise of industrialization after 1850, and the advent of the automobile at the beginning of the twentieth century. Although some blacksmiths took advantage of these changes to specialize and to develop niche markets for themselves as small entrepreneurs, others sought to maintain their trade and a degree of professional autonomy in factories.

In an effort to summarize this story while being as inclusive as possible, we have taken into account not only the experiences of blacksmiths with European roots, but also those of Aboriginal and Afro-Canadian origins. Although information tends to be limited, we have attempted to describe, where possible, the valuable role played by women in supervising a blacksmith's household and raising a family in often harsh conditions. Finally, conscious of the various dimensions inherent in all historical accounts, we have sought to present a portrait of the trade which addresses economic issues, while also incorporating aspects as diverse as the artisanal values, cultural perceptions, rural-urban disparities, daily life and activism among workers.

Résumé

Bien que familiers avec le monde des artisans pour en avoir fait l'objet de nos recherches respectives pendant plusieurs années, nous avons toujours été étonnés de voir à quel point l'héritage socioculturel des forgerons était méconnu et leur contribution à la mise en place des économies rurales et industrielles, sous-estimée au plan historique. C'est pourquoi nous avons cru bon de suivre l'itinéraire de ce métier et l'évolution de ses pratiques sur une longue période de temps, soit du début de la colonisation jusqu'aux années 1950, et à travers un large espace géographique, d'abord la vallée du Saint-Laurent et la région des Maritimes, puis l'Ontario et les provinces de l'Ouest canadien.

Avant de relever ce défi, il nous importait cependant d'éviter certains écueils. Ainsi, nous ne voulions pas d'un livre qui verserait dans une vision romantique du métier de forgeron. Notre intention était de montrer que le monde des artisans était plutôt traversé par des hiérarchies de type vertical (maîtres/compagnons/apprentis) et horizontal (travaux nobles vs travaux primaires; polyvalence vs spécialisation), lesquelles étaient souvent à l'origine de tensions sociales. Pas question, donc, de dresser ici un portrait du monde des artisans forgerons qui ne valoriserait que les rapports harmonieux entre les parties, voire le paternalisme bienveillant des maîtres d'atelier, au détriment des conflits sociaux sous-jacents.

Nous ne voulions pas non plus d'un livre qui présenterait les forgerons comme des victimes passives du changement historique. Au contraire, il nous paraissait essentiel de montrer à quel point ces artisans étaient parvenus à développer des stratégies de survie face à des bouleversements de grande ampleur, tel l'essor de l'industrialisation après 1850 ou l'avènement de l'automobile au début du XXe siècle. Alors que certains forgerons en profitaient pour spécialiser leurs activités et développer des secteurs-niches à titre de petits entrepreneurs, d'autres abordaient le travail en usine en tentant de préserver l'autonomie professionnelle que leur conférait la possession d'un métier.

Dans cet effort de reconstitution du passé, nous avons tenté d'être le plus inclusif possible, de manière à être attentif non seulement à l'expérience des forgerons issus de souches européennes de peuplement, mais aussi à celle des forgerons amérindiens et afro-canadiens. Nous avons essayé également de rendre compte, lorsque cela était possible, du rôle capital des femmes dans l'organisation de l'économie domestique et dans la reproduction sociale des ménages de forgerons. Soucieux de la dimension plurielle de tout récit historique, nous avons cherché à tracer, par ailleurs, un portrait du métier

Once we had laid out the general parameters of this study, we divided it into five chapters. The first explores the establishment and “Canadianization” of the blacksmithing trade during the colonial era, and describes the central role played by the apprenticeship system. The next chapter is devoted to the somewhat rocky trajectory of blacksmithing during the first decades of the nineteenth century. This period was marked by a consolidation of blacksmithing in rural areas and a corresponding decline in towns and cities, due in part to the rise of new ironworking trades and competition from British imports. The third chapter addresses the impact of industrialization, technological change and the factory system on the work, ways of life and activism of blacksmiths after 1850. The fourth chapter describes the subsistence conditions and adaptability of the immigrant blacksmiths who settled in western Canada at the end of the nineteenth century and during the first third of the twentieth century. The fifth chapter rounds out our study with a discussion of symbolic representations and cultural practices. After describing the evolution of legends and myths related to the blacksmithing trade, we explore how these shed new light on the superstitions, religious beliefs, collective fears and sexual stereotypes of society in general. The book concludes with reflections on the disappearance of the trade during the twentieth century, as well as the enduring influence, until quite recently, of its ethical and technological heritage within other spheres of society.

de forgeron qui ne soit pas juste économique, mais qui puisse incorporer des aspects aussi divers que l'éthique artisanale, les perceptions culturelles, les disparités ville-campagne, la vie quotidienne et le militantisme ouvrier.

Chemin faisant, nous en sommes venus à élaborer un plan de travail en cinq chapitres. Le premier d'entre eux soulève la question des modalités d'implantation et de « canadienisation » du métier de forgeron à l'époque coloniale, et invoque le rôle central joué par l'apprentissage à cet égard. Suit un autre chapitre consacré, cette fois-ci, à la trajectoire ambivalente du métier de forgeron durant les premières décennies du XIXe siècle, marquées à la fois par une consolidation des effectifs dans les campagnes et par un premier recul dans les villes dû à la présence de nouveaux métiers spécialisés du fer et à la concurrence des importations britanniques. Le troisième chapitre aborde pour sa part l'impact créé par l'industrialisation, les changements technologiques et la venue des premiers établissements usiniers, sur le travail, les modes de vie et le militantisme des forgerons après 1850. Le livre enchaîne ensuite sur le chapitre quatre dont le propos est entièrement dévoué aux conditions de survie et aux capacités d'adaptation des forgerons-immigrants venus s'installer dans l'Ouest canadien à la fin du XIXe siècle et durant le premier tiers du XXe siècle. Avec le chapitre cinq, nous avons cherché à transporter la discussion sur le terrain des représentations symboliques et des pratiques culturelles. Après avoir suivi l'évolution des légendes et des mythes liés à l'exercice du métier de forgeron, nous avons tenté de voir en quoi ceux-ci jetaient un éclairage nouveau sur les superstitions, les croyances religieuses, les peurs collectives et les stéréotypes sexuels de la société en général. En guise de conclusion, nous avons tenu à proposer quelques pistes de réflexion sur la disparition du métier de forgeron au XXe siècle de même que sur le prolongement de son héritage moral et technique dans d'autres sphères de la société jusqu'à tout récemment.

Foreword

This monograph is a valuable addition to the understanding of blacksmithing in Canada. It covers a larger period and geographical area, as well as a greater variety of subjects, than most similar studies. The timeline begins with the development of ironworking in prehistoric Europe and carries it forward well into the twentieth century. Medieval blacksmith guilds, their apprentices, journeymen, masters and regulations are briefly described. This was the system that produced North America's blacksmiths in the seventeenth and eighteenth centuries. Naturally this traditional trade had to adapt to its new environment which included a shortage of skilled workers who possessed considerable geographical and social mobility. The fact that blacksmithing eventually spread to every hamlet, village and town across North America is an indication of the importance of the trade.

Blacksmiths described in newspaper articles, local histories and in museum exhibits have usually been those working in villages and rural areas. This emphasis has resulted in a better knowledge of the role local smiths played in their communities. Examples include Barbara B. Shaw's *The Village Blacksmith* (1972), André Bérubé et al., *Le forgeron de campagne: un inventaire d'outils* (1975), Audrey Armstrong's *The Blacksmith of Fallbrook* (1979) and Françoise Dubé and Bernard Genest's *Arthur Tremblay, forgeron de village* (1978).

Blacksmiths studied at the provincial level provide a better understanding of the trade's regional implications. Examples include William N.T. Wylie, *The Blacksmith in Upper Canada, 1784-1850: A Study of Technology, Culture and Power* (1990), Jean-Pierre Hardy, *Le forgeron et le ferblantier* (1978) and Jean-Claude Dupont, *L'artisan forgeron* (1979). Works on the Forges du Saint-Maurice often include local, regional and national perspectives concerning specialized smiths and their technology during the eighteenth and nineteenth centuries. See, for example, Roch Samson, *Les Forges du Saint-Maurice: les débuts de l'industrie sidérurgique au Canada, 1730-1883* (1998).

The present monograph explores blacksmiths in the Maritimes, Quebec, Ontario, the Prairies and British Columbia. It also treats smiths in the army, navy and the police, as well as the trade's major specialities: shipbuilding blacksmiths, the ubiquitous rural blacksmith/farrier, the farmer-blacksmiths of the Prairies and the blacksmiths working in the lumbering industry.

Avant-propos

Cette monographie constitue un apport précieux pour qui veut comprendre le métier de forgeron au Canada. Contrairement à plusieurs études du même type, on y retrouve une thématique beaucoup plus riche, traitée dans une perspective de longue durée et dans un esprit de décloisonnement spatial. L'ouvrage s'ouvre sur les débuts de la métallurgie en Europe, à l'époque préhistorique, pour se prolonger jusqu'au milieu du XX^e siècle. Les corporations médiévales de forgerons et leur code régissant les rapports entre maîtres, compagnons et apprentis y sont brièvement décrits. Voilà donc le système en vertu duquel ont été formés les forgerons qui sont venus s'établir en Amérique du Nord aux XVII^e et XVIII^e siècles. Une fois transposé en sol américain, le métier de forgeron a dû s'adapter à un nouvel environnement caractérisé par une forte mobilité géographique et sociale, qui avait pour effet d'entraîner une pénurie constante de main-d'œuvre qualifiée. Le fait que ce métier soit parvenu à s'implanter dans chaque hameau, village et ville de l'Amérique du Nord témoigne non seulement de son importance, mais aussi de sa capacité à essaimer.

Les forgerons décrits dans les articles de journaux, les histoires locales et les expositions de musées sont souvent ceux qui exerçaient leur métier dans les villages ou à la campagne. L'intérêt porté à ces forgerons locaux a ainsi permis de mieux comprendre le rôle qu'ils ont joué dans leur communauté. Citons à cet égard *The Village Blacksmith* (1972) de Barbara B. Shaw, *Le forgeron de campagne: un inventaire d'outils* (1975) d'André Bérubé et al., *The Blacksmith of Fallbrook* (1979) d'Audrey Armstrong, ou encore *Arthur Tremblay: Forgeron de village* (1978) de François Dubé et Bernard Genest.

Les études menées à l'échelon provincial ont révélé les diverses dynamiques régionales sous-jacentes à la pratique du métier de forgeron. Retenons ici *The Blacksmith in Upper Canada 1784-1850: A Study of Technology, Culture and Power* (1990) de William N.T. Wylie, *Le forgeron et le ferblantier* (1978) de Jean-Pierre Hardy ou *L'artisan forgeron* (1979) de Jean-Claude Dupont. Pour leur part, les travaux sur les Forges du Saint-Maurice ont souvent porté un regard à la fois local, régional et national sur un groupe de forgerons spécialisés et sur la technologie à laquelle ils avaient l'habitude de recourir aux XVIII^e et XIX^e siècles. Relevons à ce propos *Les Forges du Saint-Maurice: les débuts de l'industrie sidérurgique au Canada, 1730-1883* (1998) de Roch Samson.

Another important contribution of this publication is the inclusion of industrial blacksmithing. Though manuals exist concerning industrial blacksmithing in the late nineteenth and early twentieth centuries, this topic has been neglected by historians. The authors describe how some smiths gave up their independence as self-employed craftsmen in order to become paid employees. Their skills were in high demand by a large number of industrial enterprises including shipyards, engine foundries, engineering works, carriage and wagon shops, railway shops and others.

Until now, the role smiths played in the triumvirate of foundry, forge and machine shops that dominated iron and steelworking from the mid-nineteenth to the mid-twentieth centuries has also been largely overlooked. Industrial blacksmiths have not been studied as much as iron moulders and machinists in monographs such as Greg S. Kealey, *Toronto Workers Respond to Industrial Capitalism, 1867-1892* (1980), Bryan D. Palmer, *A Culture in Conflict: Skilled Workers and Industrial Capitalism in Hamilton, Ontario, 1860-1914* (1979) and the more recent *Craft Capitalism: Craftworkers and Early Industrialization in Hamilton, Ontario, 1840-1872* (2007) by Robert B. Kristofferson. This research by Ruddel and Tremblay will help focus attention on industrial blacksmiths that has been lacking up to now.

Another useful aspect of this work is the consideration of the artisan's family. Though we usually imagine a blacksmith working alone, he was often head of small-sized enterprise and very much needed help from his wife and sons. Besides the traditional domestic support, wives were expected to provide room and board for her husband's journeymen, apprentices and other employees. Many sons eventually became blacksmiths themselves because of their familiarity and work around their father's forge.

Finally, the authors not only discuss the evolution of blacksmithing all across Canada, they also venture into an analysis of myth and legend. If this brief history has an enduring quality, it will be due to the authors' ability to integrate within a broad interdisciplinary framework anecdotal information and new research.

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La présente monographie porte sur les forgerons des Maritimes, du Québec, de l'Ontario, des Prairies et de la Colombie-Britannique. Les auteurs y abordent aussi bien les ramifications du métier dans l'armée, la marine et la police, que ses assises dans de nombreux domaines de l'activité économique : le ferrage des chevaux, l'agriculture (notamment par l'intermédiaire des fermiers-forgerons des Prairies), la construction navale et l'exploitation forestière.

Une autre contribution importante de la publication de Ruddel et Tremblay a trait à la prise en compte des activités d'usinage du fer en milieu industriel. Bien que les manuels techniques attestent l'existence de telles activités depuis la fin du XIX^e siècle, peu d'historiens s'y sont intéressés. Attentifs aux effets de l'industrialisation sur la main-d'oeuvre, les deux auteurs montrent comment plusieurs forgerons ont renoncé à leur statut d'artisan indépendant pour devenir des ouvriers salariés. Leurs compétences étaient fort recherchées par un grand nombre d'entreprises industrielles, que ce soit les manufactures de voitures hippomobiles, les chantiers de construction navale, les fonderies de moteurs à vapeur, les usines de matériel roulant de chemins de fer ou encore les ateliers d'ingénierie.

Jusqu'à présent, le rôle joué par les forgerons dans le triumvirat des fonderies, des forges et des ateliers mécaniques – qui tous trois dominaient le travail du fer et de l'acier à partir du milieu du XIX^e siècle jusqu'au milieu du XX^e siècle – a été largement passé sous silence. Force est de constater que les forgerons industriels n'ont pas été autant étudiés que les mouleurs de fer ou les machinistes dans des ouvrages comme *Toronto Workers Respond to Industrial Capitalism, 1867-1892* (1980) de Greg S. Kealey, *A Culture in Conflict: Skilled Workers and Industrial Capitalism in Hamilton, Ontario, 1860-1914* (1979) de Bryan D. Palmer, ou plus récemment *Craft Capitalism: Craftworkers and Early Industrialization in Hamilton, Ontario, 1840-1872* (2007) de Robert B. Kristofferson. Le travail de recherche mené par Ruddel et Tremblay vient assurément combler un vide en ce domaine.

L'intérêt porté à la famille de l'artisan constitue un autre aspect non négligeable de l'étude ci-devant. Loin de travailler seul dans son atelier, comme nous pourrions l'imaginer, le forgeron était souvent à la tête d'une petite entreprise et avait besoin de l'aide de sa femme et de ses fils. Outre les tâches domestiques, l'épouse devait veiller à ce que les compagnons, les apprentis et les autres employés de son mari soient nourris,

logés et blanchis. Quant aux fils, plusieurs d'entre eux devenaient forgerons à force de côtoyer la forge de leur père.

Enfin, les auteurs ne se limitent pas à débattre de l'évolution matérielle du métier de forgeron au Canada, ils s'aventurent aussi dans l'analyse des mythes et des légendes. Si ce survol historique mérite tant que l'on s'y attarde, c'est que les auteurs ont su combiner anecdotes riches en détails et recherche originale, à l'intérieur d'un large spectre interdisciplinaire.

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Acknowledgments

As we wrote this brief history of blacksmithing in Canada, we benefited greatly from the expertise of a wide range of authors, archivists, librarians, colleagues and friends. We are indebted to them for sharing their knowledge with us. Although not responsible for the way it evolved, we want to thank Jean-Pierre Hardy of the Canadian Museum of Civilization for his suggestion to prepare this text and Nancy Ruddell, formerly of the same institution, who worked to make an earlier draft readable for a larger audience and loaned us her house several times while we were working on the manuscript. We are also indebted to our editor, Jodi Reid, for clarifying and verifying many details.

Special thanks to Randall Brooks, Vice-President of the Collection and Research Branch of the Canada Science and Technology Museums Corporation, for his constant support and loyalty throughout the development of this publication. This book would also not be what it is without the clear-sighted comments of other Museum colleagues, including Sharon Babaian, historian, David Pantalony, curator, and John Corby, emeritus curator and active volunteer, as well as Monica Macdonald, former Museum researcher and current historian at Parks Canada.

Often unheralded in their roles as record keepers, archivists are essential to the discovery and knowledge of our past. In spite of diminishing resources, as well as changes in personnel and in cataloguing systems, the responses of most archivists to our requests went beyond the call of duty. While busy responding to many genealogical researchers, Gary Sutcliff of the Nova Scotia Archives, and John Boulter and Jannah Toms of the Prince Edward Island Archives managed to guide us to articles, census returns, blacksmith ledgers and figures. André Ruest's advice led us to a largely unpublished collection of photographs at the Bibliothèque et Archives nationales du Québec (at Quebec). The Vancouver Archives group, including Jeannie Hounslow and Chak Yung, showed exceptional competence and good humour in responding quickly to our requests. Jim Bowman and his colleagues at the Glenbow Museum in Calgary were equally expedient. Rachel Mills and Sharon Foley of the Manitoba Archives identified smiths and facilitated the choice of figures by faxing a number of copies of them to us. Thérèse Etherington made a special effort to identify smiths working at the Hudson's Bay Company in Winnipeg. Nadine Charabin, Ken Dahl and Bonnie Wagner of the Saskatchewan Archives helped us identify figures and move quickly by sending copies of them to us via the internet.

Remerciements

Durant la préparation de cet ouvrage, nous avons grandement profité de l'expertise d'un nombre incalculable d'historiens, d'archivistes, de bibliothécaires, de collègues et d'amis. Nous leur sommes redevables d'avoir partagé avec nous leur savoir. Bien qu'il n'ait pas pris part à l'évolution de ce travail, nous tenons à remercier Jean-Pierre Hardy, du Musée canadien des civilisations, pour ses suggestions sur la façon de présenter le texte, et Nancy Ruddell, autrefois au même musée, pour avoir rendu accessible à un lectorat plus vaste la première version de ce travail et pour nous avoir prêté sa maison à plusieurs reprises alors que nous travaillions au manuscrit. Nous sommes aussi redevables à notre réviseuse, Jodi Reid, qui a précisé et vérifié de nombreux détails pour nous.

Nous voulons remercier de façon particulière Randall Brooks, vice-président de la Division de la collection et de la recherche du Musée des sciences et de la technologie du Canada, pour son soutien continu et sa loyauté indéfectible tout au cours de l'élaboration de cette publication. Ce livre ne serait pas non plus ce qu'il est sans les commentaires éclairés de la part d'autres collègues du Musée, dont Sharon Babaian, historienne, David Pantalony, conservateur, et John Corby, conservateur émérite et bénévole actif, ainsi que Monica Macdonald, ancienne chercheuse au Musée, maintenant historienne auprès de Parcs Canada.

Le rôle des archivistes, en leur qualité de gardiens de documents patrimoniaux, est souvent oublié; il en demeure pas moins que ces personnes jouent un rôle essentiel dans la découverte et la connaissance de notre passé. Malgré des ressources de plus en plus maigres et de nombreux remaniements en matière de personnel et de systèmes de catalogage, le dévouement des archivistes envers nos requêtes a souvent dépassé nos attentes. Bien qu'occupés à répondre aux demandes de nombreux chercheurs-généalogistes, Gary Sutcliff, de Nova Scotia Archives, et John Boulter et Jannah Toms, de Prince Edward Island Archives, ont réussi à nous orienter vers des articles, des données de recensement ainsi que des livres de compte concernant les forgerons. Enfin, les conseils d'André Ruest nous ont conduits vers une collection inédite de photographies se trouvant à Bibliothèque et Archives nationales du Québec (à Québec). Le groupe de Vancouver Archives, dont Jeannie Hounslow et Chak Yung, a fait preuve de bonne humeur et d'une compétence exceptionnelle en répondant prestement à nos demandes. Jim Bowman et ses collègues du Glenbow Museum de Calgary se sont également

While it facilitated our work in some instances, the use of the internet occasionally created problems that had to be surmounted by professionals. For example, Vincent Lafond of the Canadian Museum of Civilization had to unravel former catalogue numbers to locate our figure requests. Similarly, Martin Lanthier of the Library and Archives Canada made valiant attempts to track down online requests for microfilms, monographs and archival documents.

Librarians also played a critical role in our work. These include professionals like Simon Lloyd at the University of Prince Edward Island library and the librarians at the Canada Science and Technology Museum: Francine Anderson, Sylvie Bertrand, Catherine Campbell, Joyce Hay, David McGee, Marcia Rak and Fiona Smith-Hale. Heather Bajdik of the Canada Science and Technology Museum's Collection Services was also very helpful when we were searching for representative artifacts.

Other knowledgeable friends and acquaintances gave us opportunities to expand our historical study. "Nancy the blacksmith" of Vancouver Island provided us with figures and information concerning the ways in which women are currently transforming the art of the smithie. While they were shoeing horses in P.E.I., Errol Taylor and Dean Richards graciously accepted having a photographer "under foot." A special thanks to Maryse who endured our obsession with so many relatively unknown artisans, tools, legends and trends.

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montrés très attentionnés. Rachel Mills et Sharon Foley, d'Archives of Manitoba, ont identifié des forgerons et facilité le choix des images en nous télécopiant plusieurs d'entre elles. Thérèse Etherington a fait des efforts particuliers pour identifier des forgerons travaillant à la Compagnie de la Baie d'Hudson à Winnipeg. Nadine Charabin, Ken Dahl et Bonnie Wagner de Saskatchewan Archives nous ont aidés à trouver des images et se sont empressés de nous en envoyer des copies par Internet.

Bien qu'il ait facilité notre travail en certains cas, l'Internet nous a occasionnellement causé des problèmes qui ont dû être réglés par des professionnels. Par exemple, Vincent Lafond, du Musée canadien des civilisations, a dû démêler d'anciens numéros de catalogue pour trouver réponse à nos demandes d'images. De même, Martin Lanthier, de Bibliothèque et Archives Canada, a fait de vaillantes recherches en ligne pour trouver des microfilms, des monographies et des documents d'archives.

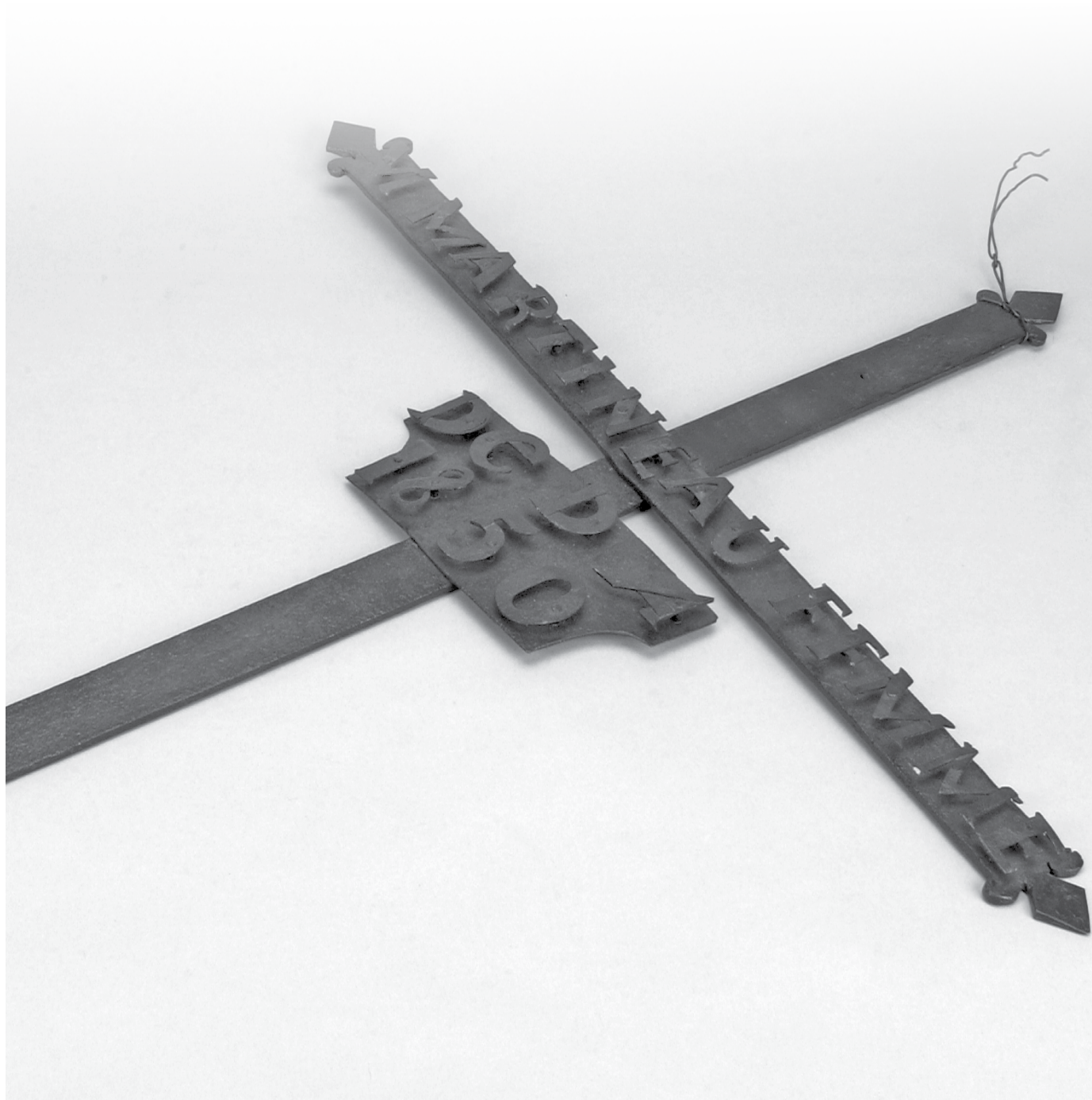
Les bibliothécaires ont aussi joué un rôle de premier plan dans notre travail. Parmi ces professionnels, il y a Simon Lloyd de la bibliothèque de l'University of Prince Edward Island ainsi que les bibliothécaires du Musée des sciences et de la technologie du Canada : Francine Anderson, Sylvie Bertrand, Catherine Campbell, Joyce Hay, David McGee, Marcia Rak et Fiona Smith Hale. L'aide que nous a apportée Heather Bajdik des Services de la collection du Musée des sciences et de la technologie du Canada nous a aussi été très précieuse dans notre recherche d'artefacts représentatifs.

D'autres amis et connaissances bien informés nous ont donné l'occasion d'élargir le champ de notre étude. « Nancy la forgeronne » de l'île de Vancouver nous a fourni des chiffres et des renseignements sur les façons dont les femmes transforment actuellement l'art de la ferronnerie. Alors qu'ils feraient des chevaux à l'Île-du-Prince-Édouard, Errol Taylor et Dean Richards ont gracieusement accepté d'avoir un photographe « dans les jambes ». Finalement, un merci particulier à Maryse qui a supporté notre obsession à l'égard d'un si grand nombre d'outils, de légendes, de tendances et d'artisans relativement inconnus.

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INTRODUCTION



Introduction

The discovery of metals and the methods of working them are fundamental parts of human existence and an indication of the technological prowess of a people—indeed, of a group's culture as a whole. Though aspects of this knowledge were lost to most people for centuries, artisans throughout Africa, Asia and Europe knew the basic techniques governing the transformation of iron into useful objects. They also knew how to repair these objects. Ancient repairmen like blacksmiths were essential in economies of scarcity where iron was valuable and malleable and twentieth-century products like plastic did not exist. Prior to the early twentieth century, smiths constantly repaired and recycled metal objects, often transforming old pieces of iron into new tools. Their products may not have been the most polished or sophisticated, but they were always useful.

This practice of making or recycling tools by hand has all but disappeared from the Western world. Traditions that grew out of ironsmiths' work did contribute, however, to the development of attitudes and behaviours that continue to condition our daily lives. Smiths played a significant role in communities where religion and superstition provided comfort and consolation for people facing disease, famine and early death.¹ In such a fragile world the blacksmith's mastery over large animals and ability to use fire to create and repair weapons, wagons, and tools was a symbol of strength and superior power. It is not surprising then that the trade was a magnet for young boys, who associated it with manhood. The knowledge and techniques of these early ironworkers formed the basis for a surprising number of occupations, including boilermakers, heating specialists, machinists, garage mechanics, plumbers, tinsmiths, welders and general repairmen.

Today, words like iron, anvil and blacksmith are used to identify everything from antique shops, restaurants and wines, to musical groups like "Anvil," a Canadian heavy metal rock band. Ironworking itself is undergoing a renaissance as women and men of all ages learn new and ancient techniques and create new associations (fig. 1 & 2). This fascination with metalworking is also evident in the interest shown in recent discoveries of how Greek artisans erected majestic temples over 5,000 years ago using metal clamps and chisels to carve and bind marble (fig. 3).²

Scholars are also intrigued by the appearance of bronze, an alloy of tin and copper, in Egyptian swords and tools in 2,000 BCE, and of steel in Japanese swords in the fourth and



Figure 1: Apprentice working at the anvil, Sherbrooke Village, Nova Scotia, 2007 (Photo by author, DTR)

Figure 2: "Nancy the blacksmith" welding at her shop, Metchosin, British Columbia, 2007. Inspired in 1991 by the smell, noise, sparks and monster size tongs at the Sooke Museum's blacksmith shop, Nancy chose to work in it instead of a summer job in a historical reenactment of "Miss Tilly" (Photo by Anne-Marie Krahn)





Figure 3: Parthenon having nineteenth-century iron clamps replaced, Athens, 2007 (Photo by author, DTR)

fifth centuries CE. Modern metallurgists recently discovered that the sharp, strong and flexible samurai weapons of ancient times were created by regulating the temperature of and the amount of carbon in the metal. Archaeometallurgy researchers are comparing the metal used in those Japanese swords with that found in the so-called “Damascus steel” swords.³ These attractive, flexible, tough and durable weapons were used by Islamic warriors who, after expelling the Crusaders from the Middle East (CE 1095-1270), conquered large areas of Europe during the fifteenth century.⁴

Archaeologists working in northern Europe found that, during the ninth and tenth centuries, blacksmiths joined iron together by soldering or riveting. Eleventh-century tools of a master smith from the Viking age reveal similar skills, ranging from forging implements, to soldering and decorating bronze objects, as well as making metal components for furniture and ships. Influenced by Viking techniques, blacksmiths working in Swedish shipyards produced customized nails and bolts used in ships like the 1628 Vasa, now housed in a specially built Stockholm museum. In order to construct this complex vessel, skilled craftsmen were imported from all over Europe (fig. 4).⁵

The importance of their skills meant that blacksmiths were in constant demand not only in shipyards but also in large construction projects where they worked in teams with other artisans. Ancient temples, as well as medieval castles such as the Tre Kronor Castle in Stockholm, included special locations where smiths laboured alongside bricklayers, carpenters, glaziers, joiners and stone masons. Their skill set resulted in good salaries and mobility, allowing them to travel to distant work sites.

Historians suggest that, when iron was first produced, it not only provided people with a technological advantage over

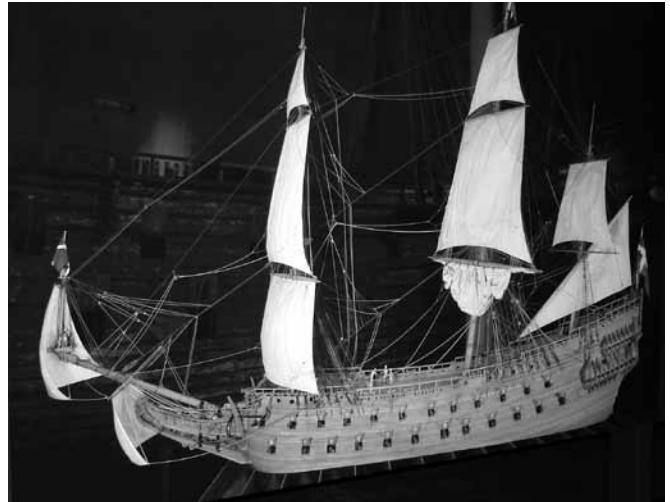


Figure 4: Model of the seventeenth-century ship, the Vasa, Stockholm, 2007 (Photo by author, DTR)

their neighbours, it also changed the existing social fabric. Since only the upper classes could afford to acquire bronze objects, the introduction of cheaper metals produced from local ores helped poorer people purchase similar objects made from iron and reduced the elite’s power and status.

The impact of iron on society is evident in the mythology that developed around it and its appearance in everyday language. Examples of English terms using it in different fields, many of which have since fallen out of use, include: archaeology (iron age), the army (iron rations, iron fist, ironside veteran) and navy (ironclad, iron-sick ships), botany (ironweed), ceramics (ironstone china), medicine (iron lung, iron lozenges, iron deficiency), textiles (iron liquor, iron mould), railway transportation (iron horse) and laundry (irons, ironer and ironing board), as well as in interpersonal relationships (iron hearted), royalty (iron crown) and in prisons (iron fetters). The term “iron man,” used to identify an 1825 textile machine as well as a 1960s American comic book hero, also appeared in TV shows, videos and the 2008 Hollywood film *Iron Man*.

Because the production of superior weaponry was a key factor in the evolution of iron, iron’s impact on society also had negative consequences. As blacksmiths learned the ancient art of forging iron, they helped to turn their countries into industrial and military powerhouses. Iron weapons gave the samurai warriors of the fourth century, the Syrians and Turks in the ninth and tenth centuries, the Vikings in the eleventh century and, in more recent times, European explorers, armies and navies a decided advantage over their opponents.

By the eighteenth century, Denmark, Sweden, Spain, Portugal, Holland, England and France were using iron products and weapons on land and sea in their battles with



Figure 5: Full armour of a seventeenth-century Danish soldier, Denmark, 2007 (Photo by author, DTR)

neighbours, as well as in conquests of far-flung colonies (fig. 5). During the latter part of the century, England tried to guard advances in the iron industry by enacting legislation prohibiting the emigration of highly skilled artisans and the export of machinery and machine drawings. The attempt to slow the spread of new technology was meant to provide industrial powers with military superiority, as well as opportunities to export their finished products to their colonies and less developed nations.⁶

When Europeans first arrived in North and South America, the absence of an indigenous tradition in iron making provided the Europeans not only with invaluable trade goods, but also with military superiority over the First Nations peoples. Bringing the distilled wisdom of centuries with them, early smiths were able to provide farmers, fishermen, fur traders, lumbermen, railroaders and their families with the techniques, tools and accessories that would prove critical to the development of European colonies in North America. Firmly established in eastern parts of the continent by the eighteenth century, the trade became more specialized in the nineteenth and, as the West was settled, its members increased rapidly.

The urban blacksmith's history after 1850 involved difficult working conditions and technological transformation, when the once proud, independent artisan found himself obliged to work in factories under the supervision of foremen. As their standard of life diminished, these smiths found themselves in an ambiguous situation. Should they unionize like other

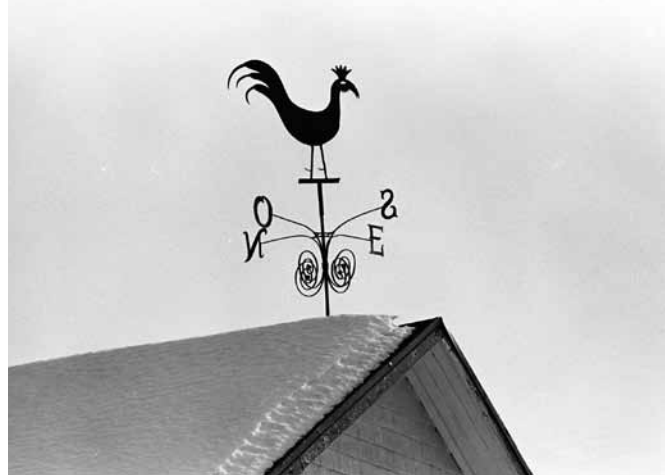


Figure 6: Decorative rooster weathervane on top of a blacksmith's shop, Quebec (BANQ, E10, S44, SS1, D75-806)

skilled workers and fight for better conditions, or continue to demand the traditional respect owed to them because of their knowledge and experience? This was not a question unique to blacksmiths, but the strategies they developed were indicative of their understanding of the changes occurring in their status and bargaining power.

The arrival of the steam locomotive—or “iron horse”—in the latter part of the nineteenth century, and of automobiles, trucks, tractors—or “gasoline devils”—in the early twentieth century, heralded the beginning of the end for many traditional smiths. The horse and buggy were gradually replaced by the automobile, which became one of the world's new icons, transforming the landscape and the workplace.

Urban smiths who became mechanics and machinists fared a bit better than their counterparts in large industrial sites. The former became the front-line workers whose experience facilitated the introduction and adoption of new technologies. As workhorses gradually disappeared from farmers' fields, rural smiths survived by working in mining, logging, railroad and survey camps, or by developing niches in shoeing race horses and making ornamental iron and art. Still others augmented their incomes by adopting welding techniques to make trailers and repair agricultural equipment.

In spite of such dramatic changes, the romantic portrait of the handsome, strong and hard-working smith lives on in myths and legends. Although the origins of imaginary stories are largely unknown, these stories helped build a figure that enhanced the traditional blacksmith's identity and preserved it for future generations. Today, travelling horseshoers, artists and hobby smiths have embraced some of the trade's heritage and are forging unique objects in their quest to prolong and recreate the blacksmith's craft (fig. 6).

NOTES

- 1 P.R. Maughton, *The Mande Blacksmith: Knowledge, Power & Art in West Africa* (Bloomington: Indiana University Press, 1988), 241, reviewed by S. Genest, *Canadian Association of Africa Studies* 24, no. 1 (1990): 127-129.
- 2 E. Hadingham, "Unlocking Mysteries of the Parthenon," *Smithsonian* (Feb. 2008): 38-40 <http://www.smithsonianmag.com/history-archaeology/parthenon.html>.
- 3 Anna Feuerbach, "New research on the development of crucible steel in the Middle East." <http://home.att.net/~moltenmuse/>.
- 4 Web sites: <http://encarta.msn.com/encyclopedia/damascus-steel.htm>
- 5 Information concerning Viking and medieval blacksmiths comes from exhibition texts in Scandinavian museums and historic sites, especially the Historiska Museet, the *Vasa* ship Museum and the Tre Kronor Castle in Stockholm, Sweden, and the National Museum of Finland in Helsinki.
- 6 H. B. Hancock and N. B. Wilkinson, "Joshua Gilpin: An American Manufacturer in England and Wales, 1795-1801," *Newcomen Society for the Study of the History of Engineering and Technology* (1961): 16-17.

CHAPTER ONE

COLONIAL SMITHS



1 COLONIAL SMITHS

Smiths are the precursors of European colonization in North America. Before immigration became a significant factor in populating the countryside, smiths arrived on ships with explorers seeking gold, fish and fur. As settlements spread along the St. Lawrence River and later in the Maritime region, establishing an ironworking shop was one of the colonists' first priorities. Important villages always boasted one or more blacksmiths. Their shops were not only a focus point for community news, they were also training establishments for future artisans and especially for the sons of village smiths, who learned the trade from their fathers.

Wives, mothers and sisters laboured alongside the ironworkers, providing their husbands and their societies with essential ingredients for the growth of families and communities. Early blacksmiths and their families were mobile, often moving three or four times before settling and setting up shop. Many found themselves in disease-ridden ships, epidemics, famines and military conflicts. Some perished, while others eked out an existence; many prospered through perseverance and hard work, as well as from being on the winning side of European conflicts.

Although specialized ironworkers were involved in casting iron products, most early smiths were versatile: they performed a multitude of jobs, including shoeing horses, a task that always provided them with work and their customers with transportation. Distinctive types of ironworkers co-existed, but they all shared a pride in their craftsmanship and a desire for independent work.¹

1.1 IRONSMITHS IN OUTPORTS AND FORTS

The influence of blacksmiths in North America is reflected in their presence among the earliest known European settlements and in their work on ships. For example, the temporary Viking settlement at L'Anse aux Meadows, established circa 1,000 CE in northern Newfoundland, included a makeshift furnace and a forge where bog iron was roasted and the remaining impurities hammered out. While living in the same sod house, blacksmiths worked in a neighbouring shop preparing nails and rivets for sailing ships that were exploring and fishing in the area.



Figure 1.1: French fisherman using jigline & hook, Newfoundland, 1692 (LAC, E-3686)

Figure 1.2: Cod jigline and hook from Twillingate, Newfoundland (CMC, 94-28690)



While exploiting the fisheries and developing fur-trade routes inland, the superior weaponry and iron goods of the French and British provided them with military victories and privileged trading possibilities with the First Peoples. In the early seventeenth century, military officers signalled the importance of establishing ironworking shops “for all needful uses” in garrisons, such as Cupids (originally Cupers Cove) in Newfoundland, the oldest official British colony in Canada. The goal of this settlement was to initiate relations with the Beothuk natives and establish a fur trade. “Needful uses” at the village’s 1611 forge included casting simple lead items like cod jiggers, which were made by pouring molten lead into wooden moulds (fig. 1.1 & 1.2).²

In colonial Canada, blacksmiths were also found in the Hudson’s Bay Company’s forts throughout the country. These men were not only used to making long trips from places like Great Britain to northwestern Canada, but also to travelling to different destinations within the country, such as York Factory, Norway House, the Columbia River area and Fort Vancouver.

They were active cleaning, repairing and maintaining small arms; shoeing and caring for horses; participating in the construction and repair of buildings, vehicles, axes and traps; as well as making trade goods, such as awls and fish spears for Aboriginal inhabitants. The use of old pots and pans to patch newer ones is evidence of the frugality of these smiths. Such widespread recycling is also an indication of the rarity and value of iron and steel at the time. The fact that the shops at the Hudson’s Bay Company’s first fort at Churchill in the 1730s included only those of a blacksmith and a carpenter indicates the importance of these crafts. Also significant was the ability of many smiths to combine aspects of these two trades in their careers.³

Though they were not able to surpass the firepower of European weaponry, the First Peoples quickly realized the importance of blacksmiths. Thus, in 1803, when members of the Boston, an American ship trading along the coast of present-day British Columbia, were killed by the Nuw’chah’nulth tribe, the life of a nineteen-year-old English blacksmith, John Jewitt, was spared because of his skill in repairing muskets and making knives. He learned his trade in the 1790s from his older brother and father, who were blacksmiths in the English port of Hull. In 1802, John Jewitt signed on with the Boston as an armourer to make hatchets, daggers and knives “for the Indian trade.” Before his rescue in 1805, he spent two years in captivity working for the chief, Maquinna.⁴

As the trickle of immigration to eastern North America grew, British, French and other European ironsmiths embarked on ships, often with their families, for Louisbourg, Halifax, Quebec City and Montreal. French-speaking blacksmiths were present in New France, and, before the deportation of Acadians in the 1750s, they plied

their trade throughout the Maritime region. Most were involved in producing hardware and ironware for houses and ships, as well as providing tools for farmers. In places like Île Saint-Jean (present-day Prince Edward Island), the small population and limited number of horses and oxen only provided work for two smiths.

Blacksmith Alexis Dugats was one of the two. He moved to Malpeque, Île Saint-Jean, in 1751 from Acadia with Marie Bourg, his pregnant wife, and eight children, the oldest of whom was aged 18. Their farm included oxen, cows, a heifer, a ewe and a pig. Like other Acadians, the Dugats family was hoping to avoid British rule on the mainland by resettling on the Island. Unfortunately, they had little time to clear land and establish a farm before being beset by crop failures and famine in 1755. Three years later they were deported to France. Since, at the time, two British ships and their 700 passengers sank in the cold, stormy December weather, it is unknown whether the Dugats family ever made it to safety.⁵

Similar conditions faced steady streams of English- and German-speaking immigrants, including blacksmiths, who settled in the maritime regions left by the Acadians. Ships leaving Rotterdam, the Netherlands, for Halifax between 1750 and 1752, with 200 to 400 people on board, arrived with as many as 15 per cent of their passengers dead. Having existed on meagre provisions that were often spoiled by mould and worms and experienced storms that threatened to sink their vessels, many newcomers arrived feverish and violently ill. These ships usually included one or two blacksmiths and, occasionally, a gunsmith or a locksmith. Most were Protestants between the ages of 25 and 44, who were travelling with their wives and two to four children. When Johann Adam Schmidt, a 38-year-old German-speaking farmer and blacksmith, his wife Maria Elizabeth, 44, and five children (Catherine Barbara, 12, Maria Elizabeth, 7, Hans Thomas, 5, and two unidentified stepdaughters) arrived in Canada, they felt fortunate. The long, arduous and life-threatening voyage hardened their resolve to survive the challenges they were to face in their new country.

Whereas many of these families continued on to the Thirteen Colonies, others made their way to villages in present-day Nova Scotia, New Brunswick, Prince Edward Island and the Gaspé Peninsula. In Nova Scotia, ports and ship-building centres like Halifax, Yarmouth and Shelburne attracted the greatest number of smiths, including gunsmith Hewett Gluviass and locksmith Henrich Drescler. Gluviass worked in Annapolis until his death in 1761 and Drescler plied his trade in Lunenburg until 1763. Possessing a number of German-speaking compatriots as clients helped these new immigrants establish their businesses, but it was their skills that gave them the means to survive.⁶



Figure 1.3: Woman at a fireplace surrounded by implements made and repaired by blacksmiths, Kings Landing, New Brunswick (Photo by author, DTR)

1.2 IRON WOMEN

The story of Sidney Holmes, reconstructed by one of her descendants, provides insight into the life of a blacksmith's wife, as well as the challenges faced by women of the era. In 1761, the Irish-born Holmes arrived in Halifax by ship with her first husband dead and two children in tow. Holmes remarried and bore two more children; facing dire economic straits, she eventually bound out these two younger children. Upon her third union with the blacksmith Matthew Staples, Holmes reunited the family and, for a short time, enjoyed some stability. Staples is believed to have been a specialist in fortifications who participated in the military conflicts between the British, French and Aborigines in Acadia, as well as in Quebec City when it fell in 1759.

Holmes and Staples built a solid log house, 16 feet by 20 feet, which included a fireplace for cooking and a baking oven. Compared to the shacks and shanties of many of their neighbours, the Staples lived in one of the area's best-built and -equipped rural residences. Their two sons, John and William, were born here, but they knew little of their father since he died in 1771 when they were still small children. According to his will, Staples left one-third of his land and possessions to Holmes and the remaining two-thirds to his two sons. At 41, Holmes was a widow for a third time. But she continued to raise her children and, since this strong woman lived during a turbulent period of history to the age of 82, she must have weathered many more storms. It is not known whether she took over the supervision of Matthew's blacksmith shop or encouraged any of her children to do so.⁷

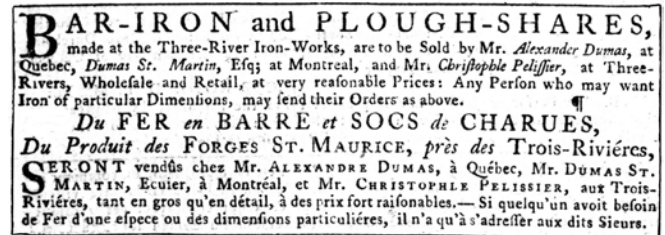


Figure 1.4: Advertisement from the Quebec Gazette for bar iron and plowshares from the Forges du Saint-Maurice (CMC, 76-16135)

Although only a few widows of blacksmiths undertook the management of the family forge, women performed essential household tasks. Even in the temporary Viking settlements, textile and kitchen artifacts indicate significant projects undertaken by women. Travelling great distances in difficult circumstances, some women lived temporarily in tents and often for lifetimes in log cabins. Mosquitoes, flies and inclement weather rendered living conditions difficult. Some women died in childbirth, while those who survived raised, educated and cared for the young; tended chickens and livestock; helped clear the land and harvest crops; gardened; made brooms, baskets, soap, candles and clothing; and prepared food. Some of these tasks involved strenuous activities, such as helping with the harvest; hauling water and wood; washing clothes in rivers and lakes; controlling the heat of an open fireplace (fig. 1.3); or labouring long hours over a hot stove.

According to stories about Acadian blacksmiths, women had to be ready to feed farmers arriving from distant places to have their horses shod or equipment repaired. When unexpected guests appeared at the shop in the morning, they were fed at noon before the household's children, who got leftovers. During good weather in the winter, farmers' wives often came to visit and spend time together, while helping the blacksmith's wife make bedding or floor mats. The ease with which these folk welcomed others became a hallmark of country living.⁸

1.3 EARLY IRONWORKS

The discovery by French explorers to North America of an important iron ore deposit near Trois-Rivières, Quebec, led to the development of New France's only blast furnace and foundry—Forges du Saint-Maurice. In order to exploit this resource, specialized ironworkers made the long, arduous trip from France to begin working in New France. The foundry was a significant development because moulds or casts, into which liquid metal was poured, replaced many previous stages in the production of an object. While reducing the need for smiths to make an object through hammering, heating,



Figure 1.5: Eighteenth-century French apprentices and blacksmith, from the *Encyclopédie de Diderot* (CMC, 74-12064)

shaping, cooling and recrafting their work, mould iron casts were also used to produce designs that were almost impossible to fashion with traditional blacksmithing techniques.

Between 1732 and 1883, French and British artisans made products for their armies and royal navies, as well as stoves and kitchenware, equipment for farming and transportation, and large amounts of bar iron (fig. 1.4). The bars were used by blacksmiths to make tools, nails, horseshoes, and household hardware and implements. In 1752, 120 French-speaking artisans were attached to the Forges; by 1808, many of them were replaced by a mainly anglophone workforce of 300 men.⁹

A labour dispute at the Forges in 1749 is reputed to have been one of the first by ironworkers in Canada and one of the few that occurred during the eighteenth century. Although not known for their collective action, these specialized artisans were unusual in New France because they worked in larger groups than the solitary blacksmith with his son, apprentice or journeyman. Another century would pass before smiths united again in a common cause.

Although other eighteenth-century ironworks were rare, one appeared briefly during the 1790s at Wilmot in the Annapolis County of Nova Scotia. It was during the nineteenth century, however, that ironworks appeared throughout colonial Canada. The Marmora Ironworks of Upper Canada (present-day Ontario) was typical of those appearing in the 1820s. It included two charcoal-fired blast furnaces, a forge with water-powered hammers, and hearths for the production of iron bar. The Annapolis Iron Mining Company, which opened in 1826 near Clementsport, Nova Scotia, sold common products, such as kettles, boilers and dog irons. The existence of early industries was often short-lived. Some failed due to the poor quality of their minerals or iron, as well as the existence of inadequate markets. Others had difficulty competing with cheaper products from Great Britain.¹⁰

1.4 APPRENTICES AND JOURNEYMEN

French craftsmen arriving in New France found it impossible to follow guild traditions and regulations that, in France, governed apprenticeships, prices, wages, qualifications for journeymen and masters, and the quality of their products (fig. 1.5). The lack of existing traditions and skilled tradesmen in New France gave artisans arriving from France strong bargaining positions and mobility. As European traditions were adapted to meet North American conditions, only basic aspects of the hierarchical organization of the workplace, of training and of production methods were maintained. Though immigration from overseas was responsible for the origins of early urban trades, once towns developed, the apprenticeship of boys from the local population gradually furnished the trades with an expanding work force. A large number of those who were trained by their own fathers rarely signed apprenticeship contracts and almost always inherited the family business.¹¹

Although little is known about orphans, between 20 and 30 per cent of them are identified in apprenticeship contracts. Apprenticeships helped ensure orphans would have a secure future and not become a burden for society. Contributing to the number of orphans in the first place were accidents, illegitimacy, deaths of mothers during childbirth, absence of fathers at war or at work in distant locations, as well as poor hygienic conditions, epidemics and disease. For example, smallpox infected the French colony eleven times in the seventeenth century and approximately 20 times in the eighteenth. Since 32 per cent of apprentices to Quebec blacksmiths between 1648 and 1759 were orphans, these precarious colonial conditions clearly played an important role in supplying a workforce to the metalworking industry. Epidemics of smallpox in the late-eighteenth century also resulted in numerous children being bound as apprentices in Nova Scotia.¹²

Sons of blacksmiths started working with their fathers as young as 9 or 10 and were able to shoe horses on their own by 14. The average age of indentured apprentices was 16 or 17, which is among the oldest of all craft apprenticeships. Apprentices were bound out to masters for approximately three years during the French regime and for four years once the British took over New France. They worked as long as 14 hours per day on every day but Sunday, with 1.5 to 2 hours for lunch and dinner. Some apprentices were also obliged to work in the shop after hours, as well as in the house. According to their contracts, apprentices were to obey and work on behalf of the master, and to strive to learn his trade. The master, for his part, agreed to reveal the secrets of his craft and provide accommodation, lighting, food, clothing and often a small annual salary, paid either in cash or kind. Employers of large



Figure 1.6: Early nineteenth-century notice concerning a runaway apprentice (Photo by author, DTR)

shops often preferred to pay apprentices a nominal amount instead of providing food and accommodation. Some boys also received religious and academic instruction, but only a small percentage of them could read or sign their contracts at the time they were hired. This was especially true of apprentices from the country, most of whom made an “X” below their names.

Occasionally a boy’s parents intervened if they thought their son’s training was inadequate or if the master transferred the apprenticeship to another smith without prior approval. Thus, in 1711, one boy’s conscientious parents had a sentence added to their son’s three-year apprenticeship contract that stipulated he would only be required to work 18 months at the bellows heating the fire so that he could learn to make nails during the remaining 18 months. Other parents added clauses specifying that their sons not be required to do housework. At least one apprentice was given permission to annul his contract if the smoke and fire from the forge did not agree with him.

If an apprentice was being poorly treated and his parents did not intervene, he would have to take his complaint to the court. In one such instance, apprentice Joseph Landry complained in 1802 to Quebec justices of the peace that, in spite of promising to cease punching and hitting him with a hammer, blacksmith Jacques Labrecque continued to do so. Landry felt obliged to seek redress from the justices a second time because his master not only mistreated him every day but also threatened to kill Landry with an axe. The paucity of such court cases, as well as of contract annulments, suggests that serious conflict was usually resolved at the level of the blacksmith shop (fig. 1.6).

After completing their apprenticeships, the boys became journeymen and continued to work for a master until they saved enough money to open their own shops. Once they

entered the work world, journeymen earned four to six times more than they did as apprentices and were responsible for training their younger counterparts and looking after the shop when the master was absent. Unmarried journeymen often received their food and lodging from their masters. Some married journeymen also lived with their masters. In cases where the master agreed to feed and accommodate the journeyman’s wife, she received half of what her husband was allowed in bread, lard or beef.¹³

Concern for the livelihood of apprentices and journeymen was not usually extended to paid sick leave. Journeymen, for example, lost their salaries during sickness and had to make the time up at the end of their contract. Those absent due to negligence or alcoholism were docked a day’s wages. Apprentices and journeymen also had to pay for any medical treatment they received during their absence. No compensation was given to the injured or disabled. Serious illnesses and infections were often fatal as treatments for them were largely unknown at the time.

Unlike the younger apprentices, journeymen blacksmiths, along with carpenters and masons, were among the most frequent deserters from the trades, especially during periods of economic prosperity. Although they risked fines, imprisonment and loss of salary, journeymen left knowing they could find employment elsewhere.

Experienced smiths were well-paid, and most laboured in the summer from 5 a.m. to 7 p.m., and from 6 a.m. to 7 p.m. in the winter, with half an hour for breakfast and one hour for dinner. Most signed contracts for a year or more, and some stayed with the same master for 8 to 10 years before opening their own shops. They possessed, then, fairly stable, secure jobs. Blacksmiths working on ships or in fur-trading forts, fishing outposts and lumber camps usually received higher salaries than their sedentary counterparts. They also received enticements of monthly quotas of wine and tobacco. Smoking and drinking were traditional customs that were present in isolated workplaces for centuries.

1.5 SMITHS IN COLONIAL TOWNS

Towns in eastern and central Canada boasted the largest concentrations of skilled workers, including blacksmiths. By the mid-eighteenth century, they were already firmly implanted in forts and garrison towns like Quebec, Montreal and Halifax. During the French regime, the three most common metal crafts were locksmithing, toolmaking and blacksmithing. Locksmiths had to possess a solid knowledge of making fine iron parts, such as keys, locking mechanisms, and iron cases or envelopes for locks, as well as drawer and door handles, bolts and latches

for doors and windows. While some smiths were known as specialists, most practised as generalists. In the eighteenth century, for example, a blacksmith would often identify himself at different times as a locksmith, toolmaker or blacksmith, and sometimes all three at the same time. Occasionally, a blacksmith would also identify himself as a tinsmith.¹⁴

Given the importance of securing valuables in colonial buildings and homes, it is not surprising to learn that locksmiths were among the most numerous of the early metal craftsmen. The same is true of the toolmakers, who were responsible for the fabrication and repair of metal tools, including those used by farmers, woodworkers and masons. By the end of the eighteenth century, the importation of locks and tools gradually undermined the importance of the local crafts responsible for making these items. This is one reason why many of the tasks undertaken by specialized ironworkers were gradually incorporated into the work of blacksmiths.

No other artisan is said to have done so much with so few tools as the blacksmith. Although a typical shop possessed only a limited number of tools, these tools suggested the type of work the blacksmith did. In 1757, Quebec blacksmith Charles Laveau owned a large anvil and two small ones, a leather-covered bellows, a large bench vice, two smith's hammers, four pairs of smith's tongs, a brace and bits for drilling holes, a woodworker's plane, and a stock for making dies. He also owned models and tools that he had made himself, including two tin models of fleurs-de-lys, two mason's hammers, two small stable hammers for cleaning horse hooves, and four hair-curling irons. Laveau was obviously making tools, screws and bolts, and decorative iron, as well as implements for the care of horses' hooves and women's hair. With a few exceptions, Charles Laveau's tools resemble those in similar shops 50 years later. Other small shops also contained files, saws, nail-making sets, tongs for holding axe heads, and horse-shoeing tools.¹⁵

At the turn of the nineteenth century, some blacksmiths enlarged their establishments to include toolmaking shops, as well as ironware and hardware stores. Whereas ironware stores were located in ports in order to furnish the shipbuilding, lumber and construction industries with heavier iron work, hardware stores provided townspeople in residential areas with kitchen utensils and home accessories for doors and windows. The shipbuilding boom in central and eastern Canada during the early nineteenth century and the construction and repair of fortifications resulted in so much work that some master blacksmiths specialized in one type of activity and subcontracted parts of their business to other smiths. Now blacksmiths not only dominated the metalworking trades, some of them controlled different branches of the industry.

In large shops that included five or six journeymen and two to four apprentices, each individual was assigned to

different production stages of the same item. This was the case, for example, in the shops of English blacksmiths James and William Hunt, who had arrived in the town of Quebec with the latest technology, skills, capital and contacts. In 1799, they agreed to divide their work, with one brother specializing in shipbuilding and the other in government contracts, including work on fortifications. The importance of their business was enhanced by their contacts with their brother Henry Hunt, who made related products, including ship's furniture, harnesses and coaches.

The division of labour in the Hunt shops was combined with British management techniques, including printed contracts, the employment of foremen, weekly salary payments and strict discipline. The traditional relationship between the master and his skilled workers increasingly gave way to an employer-employee relationship in which apprentices and journeymen were no longer fed and lodged in the master's house, but were paid a salary instead. Consequently, since the master now regarded his workers as a business expense and no longer lived or worked beside them, the relationship took on a more formal and impersonal character. This process was part of a gradual development that turned adolescents into cheap labour and transformed craftsmen into semi-skilled labourers, who often operated within large forges with numerous smiths.

Urban smiths found themselves making items related to all aspects of transportation: ships, rafts and boats, sleighs, carts, carriages and coaches. Since many smiths were also farriers (horse-shoeing smiths), they were the most important tradesmen dealing with horses and oxen, the primary means of transportation. Although they served individuals of all classes and occupations, the smiths' most frequent clients were carters, dray men, teamsters, stagecoach owners (who transported people and goods throughout the town and country) and stable owners (who furnished horses for visitors and immigrants). In order to deal with so many horses and wagons, blacksmith shops often included tools of other trades like those of wheelwrights and veterinarians, and the shops were usually large enough to accommodate a variety of different vehicles.

Although early smiths produced a large quantity of objects for their customers, they were not always paid for them. Artisans often found it difficult to locate people who were part of a highly mobile population. When payment was not forthcoming, smiths sought ways to collect the money owed to them. Thus, John Walker, a Halifax smith and ironmonger, placed the following notice in the *Halifax Gazette* in 1752: "Wants cash to pay debts and desires his customers to pay their Christmas arrears or expect trouble."

Fierce competition from iron products imported from France, England, Europe and the United States meant that many urban blacksmiths spent as much time repairing objects as they did in



Figure 1.7: Weathervane in the form of an anvil on the roof of a country smith's shop (BANQ, E6, S8, SS2, D80-1703)

creating them. As cheaper industrial products gradually replaced handmade ones and were sold in hardware stores, the presence and traditions of the urban smith began to change.

1.6 RURAL SMITHS

These changes affected rural smiths more gradually. Poor road conditions and the lack of modern communications in isolated areas meant there were always horses to shoe and equipment to make and repair. The high cost of transporting manufactured goods from ports and urban centres to outlying areas also maintained the competitive prices of locally made and repaired products.

In the country, woodworking, leathermaking and blacksmithing artisans were the most numerous (fig. 1.7). In order to generate additional income, many of these tradesmen practised more than one occupation, engaging in fishing, farming and lumbering. Many blacksmiths also treated the common ailments affecting horses. Most rural smiths worked alone or with their offspring. Smiths in areas dominated by the fishing industry made special tools and equipment, such as oyster tongs and eel spears for fishermen, and ironware for fishing and commercial sailing ships.

The account books of rural smiths include an almost unimaginable variety of products and jobs. In addition to the items mentioned above, Stephen Fountain, a blacksmith plying his trade during the late eighteenth and early nineteenth



Figure 1.8: Seventeenth-century barbers might have dressed in fancy work clothes, but blacksmiths rarely did so (LAC, C-2937)

centuries in Sandy Cove, Nova Scotia, sharpened and/or mended jackknives, saws, scythes, plowshares, swords and horse shackles. He made and repaired iron parts for wagons and carts, barrel hoops, oarlocks, horse shoes, sheepbells and cowbells, oxen yoke irons, spinning wheel spindles, and loom irons and combs. He also made tools and iron dogs for holding them for himself and for butchers, carpenters, coopers, gardeners and lumbermen. He framed barns and milk rooms, erected fences, and worked on boats, schooners, a church and a lumber mill. He did most of this work at his own shop but, since local sawmills also included blacksmith shops, he spent a lot of time working in them.¹⁶

All kinds of households depended on Fountain. Whereas the more wealthy inhabitants ordered sets of table knives and forks from his shop, other less fortunate neighbours employed him in the repair of their broken cooking utensils. He occasionally extracted teeth from people, sharpened their razors, and cleaned and polished the local doctor's lancets.

Like many rural artisans, Stephen Fountain was often paid for his services in-kind, with such items as spirits, food, linens, bedding, floor mats, clothing, and shoes and slippers for him and his wife. In one instance, he received fur in payment for a steel trap. In addition to taking care of the household, his wife, Polly, boarded the local schoolmaster and some of his students.

The distinction between farmer and blacksmith was often blurred as farmers also possessed blacksmith tools and occasionally shod their own horses. In the 1820s, smiths like Donald MacDonald, Thomas Murphy and Lewis Talbot from the district of Sydney, Nova Scotia, performed many typical farming tasks: they raised cattle, sheep and pigs, and harvested wheat, grain, hay and potatoes. Their large gardens were cared for by the women of the family. Smiths immigrating to North America who became farmers were able to use the knowledge they gained working with iron and wood to build and repair their own houses, barns and equipment.

This close relationship between farms and craftsmen was also evident in the number of farmers' sons taking up the occupation of blacksmith. Ironworking was one of the most popular crafts with country men in early Canada. Carpentry and masonry were also popular occupations in

rural areas, while surgery, silversmithing, and tasks relating to fine clothing and wigs were left to urbanites. Characteristics of these particular urban occupations included attention to minute details, a need for diplomacy, delicate movements, an emphasis on fashion and aesthetics (such as the perfuming of body odour), and the absence of physical force (fig 1.8). These aptitudes and practices would not fit with the lifestyles of most rural men. Hard manual labour and occasionally dirty and dangerous work, combined with discipline, dexterity and pride, were distinguishing traits of blacksmiths, as well as of rural men in general.

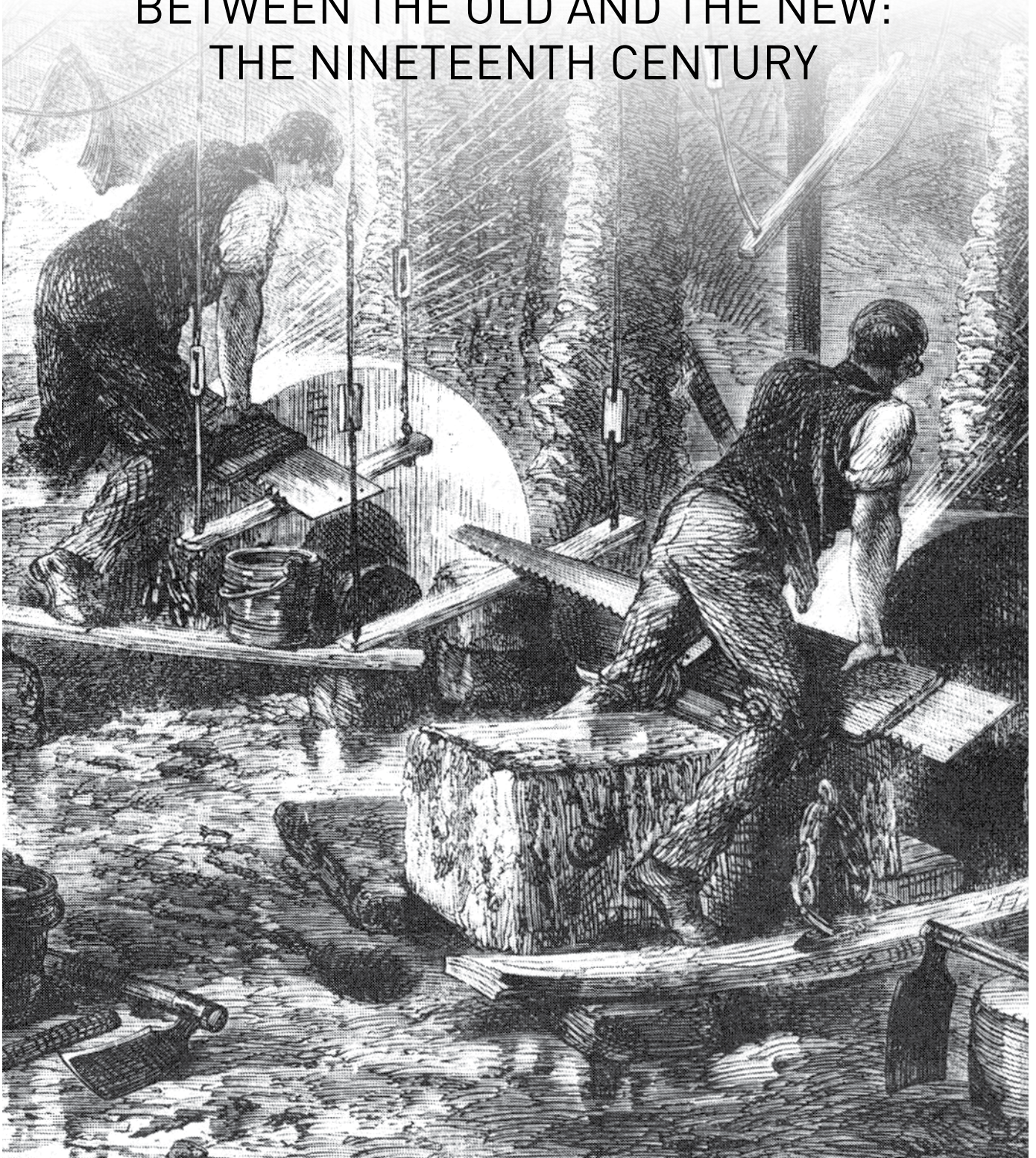
Smiths were a barometer of economic activity who helped set the stage for settlement, industrialization and urbanization. Ironworking traditions were also important bases for new occupations and technology. It was these developments, however, that eventually undermined the traditional blacksmith's role in society.

NOTES

- 1 Examples of studies of blacksmiths in this period include : J.V. Chism, *Interim Report Relative to Reconstruction of the Blacksmith Shops at Lower Fort Garry* (Ottawa, National Historic Sites, Manuscript Report), No.11, 1968, 1-7; John D. Light and Henry Unglik, *A Frontier Fur Trade Blacksmith Shop, 1796-1812* (Ottawa: Parks Canada, 1984); Jean-Pierre Hardy, *Le forgeron et le ferblantier* (Ottawa and Montréal : Musées nationaux du Canada/Boréal Express, 1978), 16-94; Jean-Claude Dupont, *L'artisan forgeron* (Sainte-Foy, Qué.: Presses de l'Université Laval, 1979) and "Blacksmithing in French Canada," *The Canadian Encyclopedia* (Edmonton: Hurtig Publishers, 1985), 192-193; William N. T. Wylie, "The Blacksmith in Upper Canada, 1784-1850: A Study of Technology, Culture and Power," *Canadian Papers in Rural History*, 7 (1990): 170-180.
- 2 www.theadmiralcoast.com/baccalieu/cupids/htm
- 3 Chism, *Interim Report Relative to Reconstruction of the Blacksmith Shops*, 1-7; and Michael Payne, "Fort Churchill, 1821-1900: an Outpost in the Fur Trade," *Manitoba History*, 20 (Autumn 1990); www.gov.mb.ca/hbca/biographical.
- 4 The story of J. Jewitt has been retold many times. For a recent critical account, see W.H. New, *Encyclopedia of Literature in Canada* (Toronto: University of Toronto Press, 2002), 553.
- 5 "Recensements de l'Île Saint Jean, 1719-1752," Special Collections, University of Prince Edward Island.
- 6 Passenger lists of ships arriving in Halifax, Nova Scotia, <http://www.progenealogists.com/palproject/ns/>.
- 7 G. Staples, "Some Descendants of Sidney Holmes and David Marshall, William Cook and Matthew Staples," Matthew Staples Family Association, 2001: 3-7.
- 8 See the interviews of artisans published in *Échos du passé* by the Coopérative d'Artisanat d'Abram-Village, Prince Edward Island, c. 1998, and other Island stories published in *Island*, Fall/Winter 2007. See also NSARM, Daybooks of Alexander Fowler, Bridgetown, Nova Scotia, 1828-1838.
- 9 The labour force and the production of the Forges have been analyzed by a number of authors, especially those working for Parks Canada. An early estimate of the size of the labour force can be found in Pierre de Sales Lattérière, *Mémoires de Pierre de Sales Lattérière et de ses traverses, 1747-1815* (Québec: , 1873), 84. For a description of the work of artisans, see Serge Saint-Pierre, *Les artisans du fer aux Forges du Saint-Maurice*, Travail inédit no. 307 (Québec: Parks Canada, 1977); and Luce Vermette, *La vie domestique aux Forges St. Maurice*, Travail inédit no. 274 (Ottawa: Parks Canada, 1977). For the industry's products, see Nicole Casteran, *Répertoire préliminaire des produits des Forges du Saint-Maurice*, Travail inédit no. 132 (Ottawa: Parks Canada, 1973); and Marcel Moussette, *Les appareils de chauffage importés au Québec et en Ontario jusqu'en 1867*, Travail inédit no. 125 (Ottawa: Parks Canada, 1972). Iron products advertized in the *Quebec Gazette* between 1765 and 1833 have been described in David-Thiery Ruddel, *Quebec City, 1765-1832: The Evolution of a Colonial Town* (Ottawa: Canadian Museum of Civilization, 1987), 146. See also, Forges du Saint Maurice <http://www.pc.gc.ca/lhn-nhs/qc/saintmaurice/>.
- 10 For a description of early foundries, see R. Hardy, *La sidérurgie dans le monde rural: les hauts fourneaux du Québec au XIXe siècle* (Québec: Les Presses de l'Université Laval, 1995), 55-57; "Foundries, Smithies and Nail Manufactures," *Encyclopedia of Newfoundland and Labrador*, St John's: Book Publishers, 1984, 346-351; H.U. Ross and J.G. Peachey, "Iron and Steel Industry," *The Canadian Encyclopedia* (Edmonton: Hurtig Publishers, 1985), 902-903; Eric Arthur and Thomas Ritchie, *Iron: Cast and Wrought Iron in Canada from Seventeenth Century to Present* (Toronto: University of Toronto Press, 1982).
- 11 The following discussion is based on Jean-Pierre Hardy and David-Thiery Ruddel, *Les apprentis artisans à Québec, 1660-1815*, (Montréal: Les Presses de l'Université du Québec, 1977), 220 and "Apprenticeship in Early Canada," *The Canadian Encyclopedia* (Edmonton: Hurtig Publishers, 1985), 67-68. For an understanding of the colonial context, see Jean-Pierre Hardy, *La vie quotidienne dans la vallée du Saint-Laurent, 1790-1835* (Hull: Musée canadien des civilisations, 2001), 30-36.
- 12 For a description of the impact of epidemics in Nova Scotia, see A.E. Marble, *Deaths, Burials and Probate Records of Nova Scotians from Primary Sources, 1749-1799*, 2 vols., (Halifax: Genealogical Association of Nova Scotia, 1990) and *Surgeons, Smallpox and the Poor: A History of Medicine and Social Conditions in Nova Scotia, 1749-1799* (Montreal: McGill-Queens University Press, 1993).
- 13 This description of colonial labour is from David-Thiery Ruddel, "La main d'oeuvre en milieu urbain au Bas-Canada :conditions et relations de travail," *RHAF*, vol.41, no.3 (winter 1988), 389-402 and *Quebec City, 1765-1832: The Evolution of a Colonial Town* (Ottawa: Canadian Museum of Civilization, 1987) , 144-149.
- 14 Observation based on a study of early population lists and censuses, such as "Le recensement de 1744," *RAPQ* (1939-1944), 1-154; J.-O. Plessis, "Les dénombrements de Québec, 1792-1805," *RAPQ* (1948-1949), 3-250; and NSARM, 1827 Census Returns for Nova Scotia.
- 15 Jean-Pierre Hardy, "Artisans de la vallée du Saint-Laurent," (unpublished paper, Hull: CMC) n.d.
- 16 "Ledger of S.Fountain," 1770-1822, LAC-MG 23, C27. See also, NSARM, "Daybook of E. Layton," (blacksmith at Great Village, Nova Scotia, 1810-96) and the "Genealogical papers of the Layton Family".

CHAPTER TWO

BETWEEN THE OLD AND THE NEW:
THE NINETEENTH CENTURY



2 BETWEEN THE OLD AND THE NEW: THE NINETEENTH CENTURY

The nineteenth century was a period of consolidation and expansion for the majority of blacksmiths. Although present in North America earlier, smiths put down solid roots in the years following the War of 1812 with the United States. Smiths in eastern and central Canada benefited from growth in farming, lumbering, fishing and shipbuilding.

From 1851 to 1881, the number of blacksmiths in both regions continued to increase significantly (see Table 1). These statistics, however, hide the fact that smiths' population in industrial cities was stagnating—and sometimes decreasing—as well as their relative place among metal working trades.¹ Thus, while the number of smiths grew in the country as a whole, this increase did not occur in urban industrial centres.

The new impetus of industrialization in Eastern and Central Canada between 1881 and 1911 brought an important decline in the number of rural and urban smiths. The growth of agriculture in the Western provinces had an opposite effect; there the blacksmith trade experienced significant growth (see Chapter 4). This chapter and the following one explore the vicissitudes of the smiths' trade in Eastern and Central Canada during the nineteenth century.

2.1 CHANGING ROLE OF THE TRADITIONAL BLACKSMITH IN URBAN CENTRES

Since the end of eighteenth century, technological innovations in primary and secondary sectors of the iron industry undermined the status of independent blacksmiths, first in England, and eventually in most Western countries. Between 1780 and 1850, the work environment and the social status of independent blacksmiths went through a period of transition. What impact did this have on the colonies of British North America, and how were Canadian blacksmiths affected by these changes?

Although the socio-economic context encouraged the traditional practice of blacksmithing at the outset of the nineteenth century, threatening elements began appearing on the horizon around 1820. Confronted by the new transportation revolution and the expansion of cities such as Halifax, Saint John, Montreal, Kingston and Toronto, the

Table 1: Number of blacksmiths in Canada between 1851 and 1911

	Lower Canada (Quebec)	Upper Canada (Ontario)	Nova Scotia	New Brunswick	Prince Edward Island	Manitoba	British Columbia	Northwest Territories	Canada
1851	2 840	4 225	---	---	---	---	---	---	7 065
1861	3 460	5 431	---	---	---	---	---	---	8 891
1871	4 629	7 897	1 891	1 277	---	---	---	---	15 694
1881	5 437	10 030	2 042	1 331	623	177	178	28	19 846
1891	5 332	8 806	1 883	1 037	484	433	407	163	18 545
1901	---	---	---	---	---	---	---	---	18 513
1911	4 812	5 926	1 237	766	263	929	1 032	1 695	16 660

Source: Printed Census of Canada, 1851-1911



Figure 2.1: Toolmakers polishing saw blades in Sheffield, England, c.1880 (Sheffield City Museums, Sheffield, England)

traditional urban blacksmith was unable to respond adequately to the growing demand for metal wares. Their technological capacities were becoming too limited to maintain their role in the production of iron goods.

This deficiency in the local production of the blacksmith was consequently filled by British imports of iron goods, which more than doubled during the 1830s,² and by the growing activity of specialized metal trades in urban centres. For example, on the eve of Confederation, the city of Saint John, New Brunswick, included more men (119) practising specialized metalworking trades than smiths (102).³ As a result, the traditional blacksmith boutique became less versatile and more restricted to horseshoeing and the repair of tools and domestic wares. As well, some apprentices and journeymen who were experiencing the diminishing role of their shops sought employment in a variety of places, including the timber industry and canal construction.

Another factor contributing to the decline of urban blacksmiths was the rise of iron foundries in central and eastern Canada, which began in a small way around 1820 and accelerated thereafter. The age of the foundry would not have been possible without the invention of the cupola furnace (often attributed to Englishman John Wilkinson) in the late eighteenth century. This new furnace had the advantage of doing a second melting of pig iron to eliminate impurities. This process produced a higher-quality metal fluid, suitable for a variety of moulding purposes. Easy to operate and not very expensive to acquire, the cupola furnace encouraged a new generation of entrepreneurs to move the manufacturing of cast iron products from the blast furnaces located in remote areas to city foundries that were closer to their principal



Figure 2.2: Assortment of shipbuilding tools manufactured by nineteenth century toolmakers (Davistown Museum, Liberty Village, Maine, Material from the exhibition *Art of the Edge Tool*)

markets.⁴ Cities like Montreal benefited from this relocation of industries. Between 1820 and 1860, the city's foundries grew from 3 to 27.⁵ A similar trend can be seen in other major metropolitan centres in North America as local blacksmith shops were no longer the only place in which metal wares were produced and assembled.

2.2 EMERGENCE OF SPECIALIZED TRADES AFTER 1820

The coming of a new generation of toolmakers, wheelwrights, nail makers and boilermakers in Canada's urban centers after 1820 marked a turning point, as they all took work away from the blacksmith. The toolmaker's craft can be traced to European cities during the Renaissance period. The toolmaker was essentially an artisan who finely chiselled different kinds of wrought iron and steel to give them their final appearance as sharp-edged tools. His products were generally sold to other artisans and farmers. Like blacksmiths, toolmakers began by drawing out hot metals with a set of flatters and tongs. But what distinguished toolmakers from blacksmiths was their profound knowledge of the hardening and tempering processes and their unique grinding techniques. Since the middle of the seventeenth century, toolmaking production was divided into two categories. The first included edged tools (axes, saws, scythes, hoes, plane blades and cutlery) that were whitened and sharpened on a grindstone (fig 2.1). The second involved brace bits and augers,



Figure 2.3 : Traditional wheelwright shop (A. Velter et M.-J. Lamothe, *Le livre des outils*, Paris, 2003, p.143)

as well as small precise tools that were used by gunsmiths, silversmiths, clockmakers and engravers.⁶

During the nineteenth century, toolmakers were active in North American cities. Some changed locations more than once. This is the case of Samuel Spiller who, after two years of apprenticeship in Palermo, Maine, and five years as a journeyman in Saint John, New Brunswick, set up a business in 1820 in Saint John and worked with some assistants until 1867 making edged tools for shipwrights. At that time, toolmakers were numerous in Saint John, with many of them opening small shops in the vicinity of the shipbuilding industry (fig 2.2).⁷

In Montreal, the buoyant growth of new suburbs in the first half of the nineteenth century and the booming of construction activities that occurred during that period coincided with the arrival of a small group of toolmakers, including James Swetman. After working at his trade for 11 years in Baltimore, Maryland, and Pittsburgh, Pennsylvania, he operated a Montreal shop between 1826 and 1832, from which he supplied carpenters with a large assortment of woodworking planes. Swetman's premature death during the 1832 cholera epidemic made room for other Montreal toolmakers to specialize in making planes, like A. Wallace and Sons, who ran a small boutique until 1885.⁸

Before 1850, some small independent toolmakers concentrated on axe making, but, since it was a time-consuming activity that required seven or eight hours to produce a single item, most axes were made in factories with the aid of mechanical trip-hammers. For example, during the mid-nineteenth century, Nathaniel S. Blasdell



Figure 2.4: François Normand transformed his 1857 blacksmith shop into one specializing in making wheels, Saint-Pascal, Quebec (BANQ, E6, S7, SS1, P80618)

of Ottawa transformed a shop he acquired in 1835 into an operation capable of mass-producing 10,000 axes per year. In order to take advantage of the growing prosperity of the lumber industry, better equipped manufacturers, such as J. Smart and Co. of Brockville, Ontario, and Welland Vale Co. of St. Catharines, Ontario, employed hundreds. After 1870, these entrepreneurs took over much of the axe-making business. Meanwhile, many independent toolmakers became subcontractors or wage workers in these large factories.⁹

As an extension of blacksmithing and joinery, the wheelwright trade began to proliferate in Canadian cities during the early nineteenth century. Like their European counterparts, Canadian wheelwrights were able to make all the parts of vehicles, including metal tires, springs and other iron fittings, as well as wooden axles and whiffletrees. Some of their jobs were particularly complex, such as the shaping of dished spokes inside a wheel, the mortising of felloes (metal rims of a spoke wheel) and the making of small iron bands that acted as a kind of bearing inside the hub when the axle rotated (fig 2.3 & 2.4).¹⁰

By the 1830s, as large shops began to supplant independent craftsmen in the construction of coaches and carriages, wheelwrights who worked for such establishments were confined to more specific duties, since they were just a link in a complex organization that included diverse tradesmen. During the early 1870s, 25 carriage-making firms were operating on a large scale in Montreal, 12 in Toronto and 3 in Saint John, New Brunswick.¹¹

Having appeared in the metalworking industry of Birmingham, England, around 1740, the nail maker's trade



Figure 2.5: Boiler Shop, Union Foundry and Machine Works Ltd., Saint John, New Brunswick, c. 1918 (LAC, PA-25226)

was probably one of the easiest to perform because of its simplicity and the limited number of tasks required to achieve the final product. Consequently, after a short apprenticeship in a blacksmith shop, young men and women were able to establish themselves as independent nail makers.

To manufacture nails, the artisan first divided large sheets of iron into several narrow strips with shears. The resulting product was then cut into three-foot-long pieces called “sticks,” which were heated and forged at one end into a sharp point. The basic stem of the nail was then separated from the stick by fixing and hammering the latter on a hack-iron wedge fastened to an anvil. Before the metal cooled, the nail stem was placed inside a bore where its shoulder was flattened to produce the nail head. A bore is an iron bar containing a series of holes to accommodate different sizes of nail stems. An experienced nail maker could forge between 800 and 900 nails a day with this technique.¹²

In cities such as Hamilton and Port Hope, Ontario, Saint John, New Brunswick, Quebec and Montreal, the golden age of the small independent nail makers was short-lived, however; soon after the nail makers became separated from the blacksmith trade in the 1820s, new mechanized factories began competing with them. Two factors contributed to their demise: first, the improvement of the circular forge, which allowed five or six men to work at it during the same time; and second, the arrival of steam-powered machines (cutting devices and, later, rolling mills) that were capable of producing thousands of nails in a few hours. By 1860, small nail manufacturing shops had completely disappeared from cities. In Montreal, for example, they were replaced by 11 industrial establishments at this time.¹³

Fuelled by the demand for steam engines, boilermaking emerged as a new trade around 1820. Its techniques, though, were not completely unknown to traditional artisans, which may explain why the first generation of boiler makers was composed of many former smiths. Encouraged by good economic circumstances, independent boiler makers succeeded for a while in operating their own shops and executing orders they received from marine engine foundries.

Making oval or tubular boilers involved at least seven different operations: marking sheets of iron, cutting them out, piercing holes, heating, bending, riveting and, finally, assembling all the pieces. The most complex task was undoubtedly the preliminary marking out of the dimensions and shape of the boiler. In order to fashion a three-dimensional product from a flat surface, the artisan needed knowledge of mathematics and geometry. During this process, he also had to find a way of tracing out the boiler components to ensure as little wastage of metal as possible (fig 2.5).

The final assembly of the boiler was also a complex task that only highly skilled and experienced craftsmen could perform. Once the prepared sheets of iron were held together with the aid of several collars and wooden crossbeams, they were riveted. While the rivets were still red hot, they were sealed to prevent leakage. At this stage, the only thing remaining was to test the pressure capacity of the boiler with a hydraulic pump.¹⁴

After 1850, owners of the major engine foundries incorporated boilermaking departments into their plants, which meant that the independent shops gradually disappeared and craftsmen had to work in a new industrial environment.

The independent craftsmen of the first half of the nineteenth century stood at a crossroads: they had inherited techniques and customs from the ancient artisan world, but, at the same time, they were on the verge of being swallowed by the new industrial order that would eventually modify their social and economic status. Their precarious situation was more pronounced in the country's emerging cities than in villages and towns.

2.3 SMITHS IN VILLAGES AND TOWNS

During the nineteenth century, well-established villages in the Maritime provinces, Quebec and Ontario all featured at least one blacksmith for every 250 to 300 residents. In 1871, Ontario, a province in which almost 80 per cent of the population lived in rural areas, included approximately 8,000 blacksmiths, or one for approximately every 250 residents.¹⁵ Areas undergoing rapid colonization, such as new counties



Figure 2.6: Close-up of making horseshoes at Charlottetown Metal Products (Prince Edward Island Archives, P2139)

in Ontario and, later, the West, provided smiths with almost unlimited opportunities. Whether such unbridled possibilities provided sustainable employment equally for everyone appears unlikely. Cutthroat competition was already affecting Ontario smiths and local manufacturers were making an increasing number of the blacksmith's products.

Like their counterparts in central Canada, blacksmiths in the Maritime provinces also grew in number until 1881 and declined thereafter. For example, in the late nineteenth century the overall number of smiths in Prince Edward Island dropped by 25 per cent. The reduction of smiths in towns like Charlottetown, P.E.I., was even more dramatic, as they fell by 50 per cent.¹⁶ Since even horseshoes were being manufactured in P.E.I., one of the smith's key functions was disappearing (fig 2.6 & 2.7).

Rural artisans came from diverse religious faiths, countries and provinces, with many having moved more than once. Most were from England, Scotland, Wales and Ireland, followed by those from the United States and Western Europe (especially Germany, Holland, Sweden and Switzerland). Some were born locally or had moved from other regions of Canada. Baptists, Methodists, Presbyterians, Roman Catholics and Lutherans occasionally hired out their services to masters and customers of different denominations. Yet since continual conflict over



Figure 2.7: Blacksmiths like Joseph-Louis Paquet continued using the heat of the forge to alter horseshoes, Saint-Côme, Quebec, 1952 (Photo by Omer Beaudoin, BANQ, E6, S7, SS1, P92908)

language and religion existed, artisans tended to settle and work with those of similar religious and national origins. In provinces like Quebec, where the Roman Catholic Church helped ensure the survival of the French language, religious differences were divisive. Although religion played a part in the deportation of Acadian artisans in the eighteenth century, language and especially racial characteristics were more likely to separate tradesmen from each other in Ontario and the Maritimes during the nineteenth century.¹⁷

Professionally, most blacksmiths identified themselves simply as village smiths or blacksmith-farmers. Using a large assortment of hand tools, these craftsmen responded to many of their communities' metalworking needs. Most smiths continued to make a wide variety of metal goods, acting as jacks of all trades. Immigrant smiths settling in rural areas were making a distinct choice, as jobs existed as blacksmith helpers and foremen in industries in Halifax, Saint John, Montreal, Toronto and Hamilton.¹⁸ Those who chose farming did so because it provided a complementary way of making a living while allowing them to continue working independently in a respected trade.

Successful blacksmith-farmers owned modest farms that included a blacksmith shop. During busy periods, they occasionally hired a journeyman who received a salary, as well as room and board. The blacksmith-farmers' place in the economy was similar to that of the small-rural-property owners who were regular customers at the blacksmith shop. Dependent on a small group of merchants for their raw materials and financial loans, blacksmiths were vulnerable to commercial crises. This was one of the reasons they often sought winter work in lumber camps.



Figure 2.8: John Fleming's "General Blacksmith Shop,"
Halifax, January 1888 (LAC, E-2140083)

Other smiths made their way to fishing villages in Nova Scotia, New Brunswick, Prince Edward Island and the Gaspé Peninsula. They specialized in the fabrication of items such as mussel-mud diggers, traps, grapnels, anchors, chains and metal components for boats. By the middle of the nineteenth century, most coastal communities had access to a blacksmith, some of which were known as marine smiths. They were often hired by companies, like the Robins and Le Boutillier in Gaspé, who exercised a monopoly over the local fishing activities. Blacksmith journeymen working for these companies also took on jobs as cooks, agents and storekeepers in order to make enough money to open their own shops.

Those working in towns often specialized in shipbuilding (fig 2.8). For example, George Henry Foster, who operated his Charlottetown shop from 1860 to 1890, made bolts, nails, boom rings, mast plates and anchors for fishing vessels and worked on the construction of over 10 barques, schooners and brigantines. In order to make anchors weighing as much as 270 lbs., Foster used a large dual-bellow system to generate enough heat to make the iron malleable and a trip-hammer mechanism to work the metal into the general shape he desired.¹⁹

Although they did not have the same equipment as Foster's Charlottetown establishment, blacksmiths at the Wyatt & Burroughs shop in Highfield, P.E.I., used the company's four hearths to make diverse iron anchors for small boats. The talent of F. T. Gill, who was trained as an apprentice at this shop, was quickly recognized by farmers in the Elliot Vale area. They offered the young journeyman a loan to purchase supplies and establish a shop to serve them. Conscious of the market for sleighs, wagons, carts and truck wagons, Gill



Figure 2.9: Waterwheels like this nineteenth-century one provided smiths with a lot of work, Sherbrooke, Nova Scotia (Photo by author, DTR)

added woodworking and wheel-making machines to his shop in 1885. He also fabricated toys and furniture for children, including small hand-sleighs, cradles, playpens and school desks.²⁰

After selling gang plows for Frost & Wood, an Ontario implement manufacturer in Smiths Falls, Gill patented an improvement to the tool and sold the patent to the company. In the early twentieth century, he was also selling and repairing motors he had acquired from Toronto and Michigan companies. Although he quickly embraced early engines, he experimented with wind power to drive his woodworking equipment. Despite his success with machinery, Gill continued to shoe horses, establishing a bit of an Island record by shoeing 19 in one day. His first and second wives were also busy, as they gave birth to a total of 20 children, losing six of them in infancy.

Other maritime blacksmiths working in rural areas assumed the tasks of machinists, plumbers, heating specialists, toolmakers and ironware suppliers. During the 1860s in Prince Edward Island, for example, Joseph Rogers made skates, bailing, well buckets and plates for waterwheels, as well as repaired pots and kettles (fig 2.9). Twenty years later, another Island smith, James Powers, produced carriage wrenches, pump braces and crimping irons, and repaired sewing and mowing machines and potato diggers. He also repaired stoves and installed stove pipes.²¹

Like his counterparts in P.E.I., Samuel Neily of Bridgetown, Nova Scotia, undertook general repair work, as well as more specific jobs related to making tools, coaches and carriages (fig 2.10 a to j). Active between 1846 and 1870, Neily

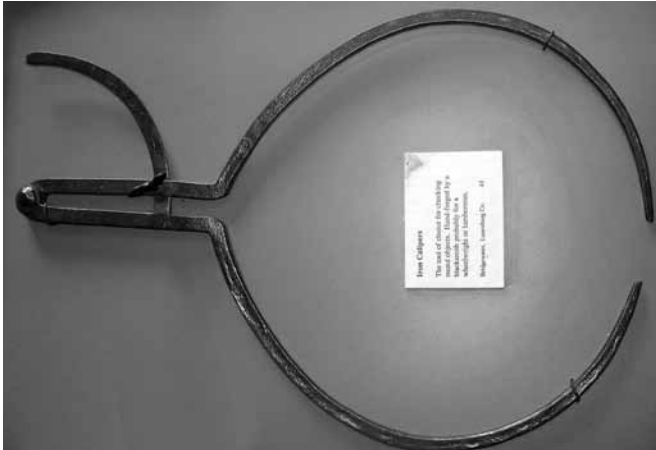
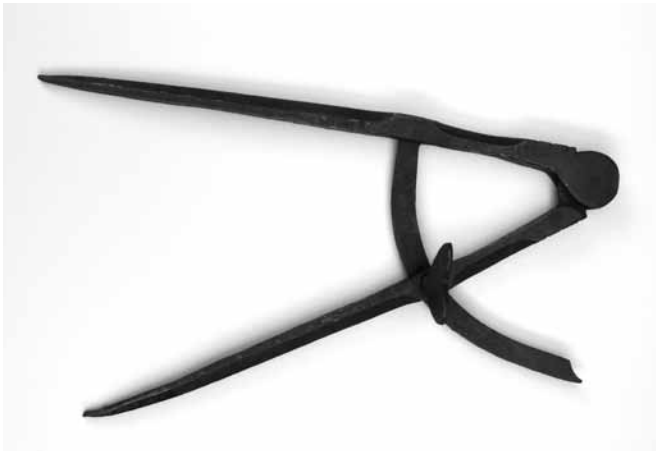


Figure 2.10: Examples of the smith's production:
a) lumberman's caliper used to measure circumference of logs (NSM)



b) butcher's cleaver, carriage snow hammer and multi-purpose hammer (Photo by author, DTR)



c) compass (CMC, D2007-8520)



d) froe used to split shingles (NSM)



e) plow (Photo by author, DTR)



f) wheelbarrow (Photo by author, DTR)



g) key made by a locksmith for the Saint-Pierre Church, l'Île-d'Orléans, Quebec (CMC, D2002-4347)



i) kitchen lifter for stove lids (NSM)



h) hand-forged toaster that demonstrates the smith's innovative abilities (CMC, D2007-8535)



j) heart-shaped tripod, an indication of the smith's aesthetic taste (CMC, D2007-8506)



Figure 2.11: Stagecoaches like this one drawn near Quebec City were built and repaired by carriage makers and blacksmiths, 1841 (LAC, C-806)

not only made, sharpened and repaired tools, he also built carriages and fabricated sleigh runners, wheelbarrow wheels, fireplace instruments, stove parts and construction hardware. Responsible for the local stagecoach, Neily shod its horses and repaired its wheels, axles, springs and seats (fig 2.11).²²

Although most rural blacksmiths continued to work on horse-drawn vehicles well into the twentieth century, the products they made became increasingly limited. By the end of the nineteenth century, blacksmiths like Samuel Hamilton of Lower Dumfries, New Brunswick, were still making and repairing sleds and hardware, but most of their income came from shoeing horses, sharpening tools and equipment, and repairing agricultural implements and vehicles.²³

Payment for the myriad jobs undertaken by smiths came in a number of ways. Since many small and poor farmers had difficulty paying their bills, smiths often allowed them to postpone reimbursement or accepted to be paid in-kind. This method provided smiths with much of what they needed to feed and house their families, including wool and homespun cloth, livestock, meat, cereals, vegetables, fruit, fish, tallow for candles, firewood, shingles and wooden planks. Like their business counterparts, smiths often had to visit farmers to collect debts. In some cases, smiths were never paid; in others, they managed to settle their accounts after estate sales. Successful smiths often hired a person to keep their accounts, who was occasionally paid in-kind. Artisans were always happy, however, to be paid in cash.

Most rural trades in Canada continued to involve apprenticeships, but, at an average age of 18, recruits were older than their predecessors. With the exception of sons working in their fathers' shops, there was little indication of the young apprentices from earlier times. Some, like the apprentice John German (23), were older than young journeymen. Instead of residing in the master's house, rural apprentices and journeymen lived under the same roof as their parents and siblings. This was the case, for example, of Cyrille Lavallière, a 20-year-old apprentice living in Saint-Georges, Quebec, in 1881 with his mother and father, his brother, his brother's wife and their five children.²⁴

Many young men from rural areas continued the tradition of learning the trade from their fathers and remained as journeymen in the family house after their apprenticeship finished. Blacksmith and carriage maker Pierre Morin (44) and his wife Marguerite Dionne (42), also from Saint-Georges, housed their two journeymen sons, Pierre (22) and Albert (18), plus four children between the ages of 7 and 13. Rural apprentices were very much part of a family project, in which mothers played a critical role.

Mothers were responsible not only for accommodating apprentices, journeymen and labourers, they also cared for the

young, the elderly, widows, widowers, orphans and paupers. For example, Sophrénie Hinse, a young mother in Saint-Georges, was kept very busy keeping house for her blacksmith husband, Joseph Paquet, and his brother and apprentice, Euclide Paquet, while raising four children between the ages of nine months and five-years-old.

Only the rare artisan could afford domestic help for his wife and, even then, her responsibilities were burdensome. Consider, for example, Theresa Feindal, an English-speaking woman married to Daniel Feindal, a blacksmith and hotelkeeper of German descent, in Middleton, Nova Scotia, in 1881. She maintained the family home, inhabited by her husband and son, William (also a blacksmith), two other children (six- and four-years-old), two apprentice blacksmiths (aged 17 and 19 and of English descent), two journeymen saddlers (23 and 25 and of Scottish descent) and, as help, an indentured female servant (of French origin). Accommodating such different traditions while ensuring everyone understood the rules of the household would not have been an easy task.²⁵

2.4 ABORIGINAL AND AFRO-CANADIAN SMITHS

Aboriginal and Afro-Canadian blacksmiths worked in a limited number of areas and few young apprentices from their communities existed to replace the older smiths.

The scarcity of smiths among Aboriginal peoples may be explained by the fact that Native Peoples did not consider it necessary to shoe riding horses. Aboriginal smiths practised close to Native reserves. A few Natives from the United States travelled to Ontario and settled near Manitoulin Island, while others settled next to the large Six Nations bands in the southern part of the province. Ontario-born aboriginal smiths lived almost side-by-side on the Six Nations reserve. In the 1870s, for example, the aboriginal smiths Daniel McDougall (32), William Joseph (47) and John Ceerow (31) were located respectively in the townships of Oneida, Tuscarora and Tyendinaga.²⁶

Aboriginal smiths had few opportunities outside their own territories. Also, since their average age was 41 and no Aboriginal apprentices were noted in the provincial statistics, blacksmithing does not appear to have been a growing trade for Natives. Some Aboriginal smiths may be difficult to identify because they were absorbed into other cultures or were not documented in census returns. There are, moreover, few traces of students being taught the trade in residential schools. More research would likely uncover other blacksmiths, including those of Métis origin, like Narcisse Marion, who was recommended to receive compensation in the early 1870s for losses incurred during the Red River Rebellion.²⁷



Figure 2.12: The bridge on the CPR line at Lachine was one of the first steel structures on which Mohawk riveters worked, c.1889(Photo by A.Henderson, LAC, PA-27638)

The lack of a tradition of blacksmithing among the First Nations meant that young people had few models to follow or fathers to teach them the trade. Nevertheless, opportunities to work in well-paying ironworking jobs were often embraced. Thus, when Mohawk labourers were asked in the late nineteenth century to help build a bridge that exited onto Aboriginal land, they seized the opportunity to become riveters, or ironworkers who did not need the same training as traditional blacksmiths. They learned quickly and were keenly aware of the dangers of working on tall metal structures. Before the Quebec Bridge collapsed in 1907 killing 75 men, Angus Blue, an Aboriginal riveter, reported that one of the bridge supports was seriously strained.²⁸ This kind of knowledge helped the Native riveters adapt to the perils of working on such projects. As they “boomed out” on the heady sites of bridges and, later, of American skyscrapers, the Mohawks became known as specialists capable of hard and dangerous work at unparalleled heights (fig 2.12 & 2.13).

African-French, African-British and African-American immigrants were present in early Canada, often as slaves, but little is known about the existence of blacksmiths among them. The largest groups of residents of African descent arrived in Canada after wars or slavery legislation involving Americans during the late eighteenth and early nineteenth centuries. None of the Black Loyalist hammerers and blacksmiths, who escaped from the newly independent United States in the 1780s and were offered land in Nova Scotia for having supported the British cause, appear to have stayed in the province. Economic exploitation, racial discrimination, violence and inadequate or non-existent farms turned most of them into debt slaves. Obligated to work for white loyalists for low wages undermined

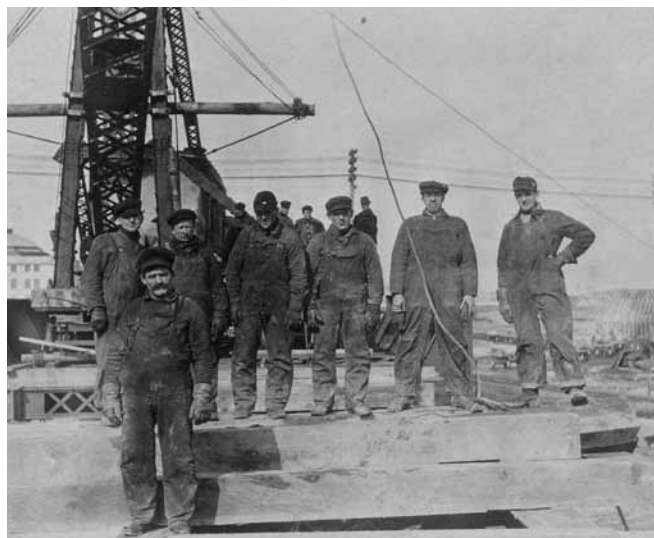


Figure 2.13: Ironworkers were active in the construction of hotels, such as the Fort Garry Hotel in Winnipeg, c.1912 (Manitoba Archives, Iron Workers Collection, Negative 10979)

the establishment of black artisan and farming families and was probably one of the reasons many of them left.²⁹

Of the approximately 2,000 people of African descent who settled in places like Preston, Nova Scotia, after the War of 1812, little information has been published concerning blacksmiths among them. In Ontario, however, later censuses identify significant numbers of smiths of African descent. The largest group was composed of Afro-Americans. Repressive slavery legislation and the American Civil War (1861-1865) resulted in a flood of refugees to Ontario. Identified as “African” blacksmiths and apprentices, they settled close to the American border, mainly in rural southwestern parts of the province, like Buxton, Chatham, Windsor and St. Catharines.

The average age (32.5) of the Afro-Canadian blacksmiths born in Ontario was much lower than that of the Afro-Americans (56). In 1871, many of the latter were in their 60s and some older, such as Israel Talbot and Joseph Cornish (both 70), James Williams (74) and John Andrews (100). Questions about the lives of these men and their families remain unanswered. Did, for example, many of their offspring return to the United States? Similarly, where was John Andrews born in 1771, and what did he do before arriving in Canada? How did he learn a trade and get to Ontario? Did he change his name to avoid being traced by slave owners and their slave catchers? The age of these Afro-Americans suggests they were re-establishing themselves at a time in their lives when most of their white counterparts already had a secure future. Although the basis of a community existed in places like Chatham, it is not clear whether these Afro-American and Afro-Canadian craftsmen established a blacksmith tradition among their offspring. Clearly, the small number of young Afro-Canadian



Figure 2.14: Harriet Tubman, a “conductor” reputed to have helped over 300 American slaves escape to Canada, c.1850 (LAC, C-34334)

smiths would not manage to replace the older, more numerous Afro-American immigrants in the Ontario workforce.

Afro-American Chatham women in the 1850s, like Mary Smith and Emily Stafford, whose husbands were blacksmiths, were key actors in the survival of their communities. The desire to escape conditions in the United States gave women the motivation to escape slavery, as well as to provide their children with a stable environment. In spite of the hazards of escape, capture, severe punishment and death, Afro-American women made the dangerous trip through swamps, cities and forests to Canada (fig 2.14).³⁰

Although these women found freedom from slavery, Canada had discriminatory practices similar to those they had fled in the United States. The Ontario government, for example, provided little support for the education of Afro-



Figure 2.15: Mary Ann Shadd, a teacher and journalist who promoted black settlement and education, as well as manual labour, c.1850 (LAC, C-29977)

Canadians. Nevertheless, mothers in general and wives of blacksmiths, like Mary Smith and Emily Stafford, made sure their children went to school. They also became Sunday school teachers, nurturers, community organizers, as well as seamstresses, servants, washerwomen, labourers and cooks (fig 2.15).

Blacksmithing among artisans of European origin was generally a successful craft until the first half of the nineteenth century in central and eastern Canada, and decades later in western Canada. The traditional way of life and techniques of the blacksmith were preserved for almost another century in some rural areas, but to a far lesser degree in Aboriginal and Afro-Canadian communities. After 1850, elements already active in cities would threaten the independence of many of these artisans at an accelerated pace.

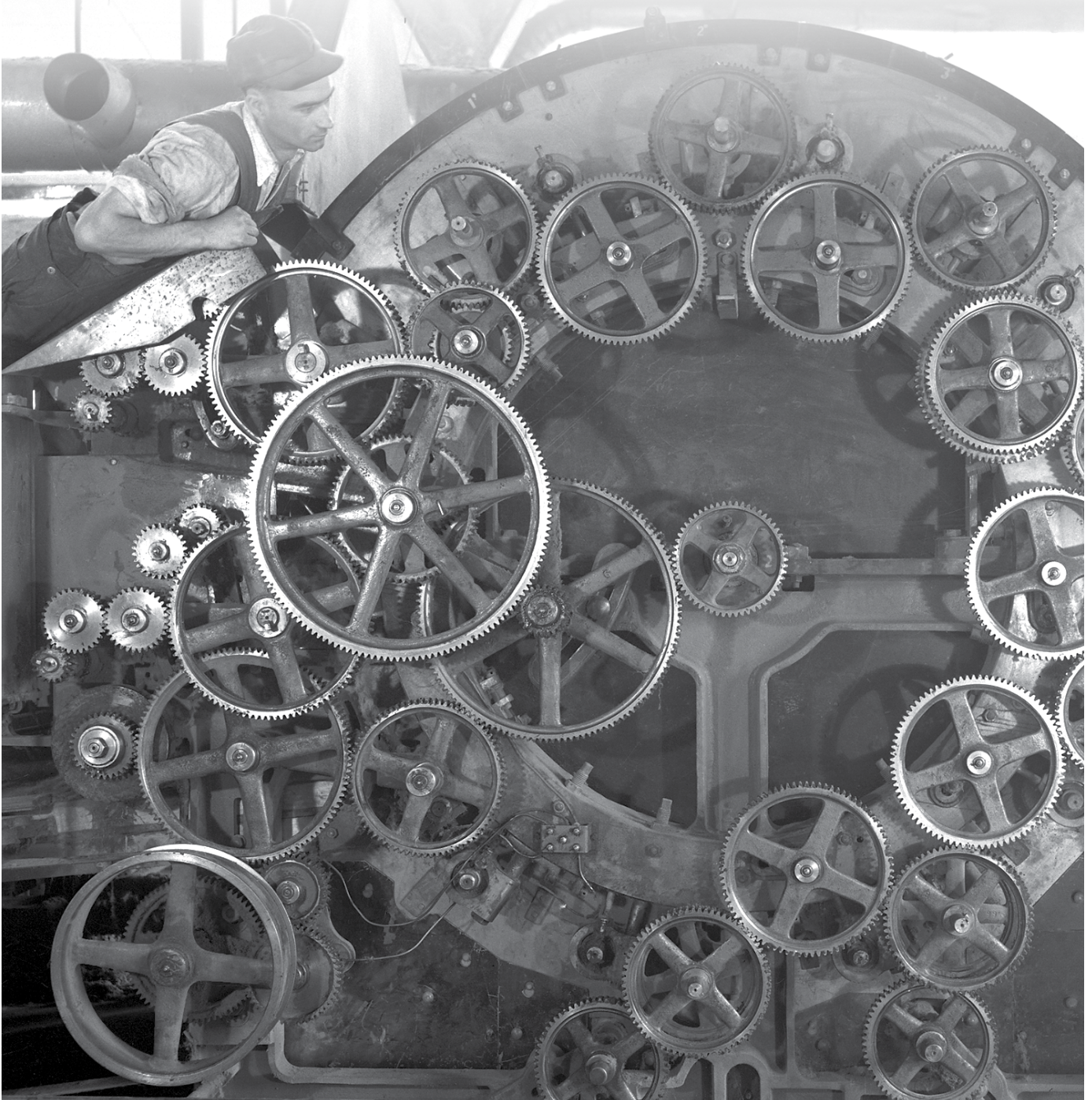
NOTES

- 1 During these three decades, for example, the proportion of smiths in the metalworking trades had declined by almost 20 per cent. See W. Wylie, *Nebulous Substance: The Portrayal of Iron and Steel Employment in the Printed Census Reports of British North America, 1851-1891*, Research Bulletin #199 (Ottawa: National Parks Service, 1983), 7.
- 2 M. Vallières and Y. Desloges, “Les échanges commerciaux de la colonie laurentienne avec la Grande-Bretagne, 1760-1850: l'exemple des importations de produits textiles et métallurgiques,” *RHAF*, 61, 3-4 (hiver-printemps 2008), 457.
- 3 *Hutchison's New Brunswick Directory, 1865-1866*.
- 4 *Canadian Merchant's Magazine* (May 1858), 101; R. Hardy, *La sidérurgie dans le monde rural*, 28-34.
- 5 Robert Tremblay, *Du forgeron au machiniste: l'impact social de la mécanisation des opérations d'usinage dans l'industrie de la métallurgie à Montréal, de 1815 à 1860* (PhD thesis, Université du Québec à Montréal, 1992), 58.

- 6 Robert Tremblay, *Histoire des outils manuels au Canada, de 1820 à 1960: héritage européen, techniques de fabrication et entreprises manufacturières*, Transformation Series #10, (Ottawa: CSTM, 2001), 11-13.
- 7 R. H. Wyllie, "The Edge Tools of Saint John: Echoes of a Forgotten Industry," *Chronicle of the Early American Industries Association*, 35.1 (March 1982), 14-18.
- 8 Tremblay, *Histoire des outils manuels*, 97, 99; and C. W. Prine, "James Sweetman, Planemaker," *Chronicle of the Early American Industries Association*, 52.1 (March 1999), 24-29.
- 9 Tremblay, *Histoire des outils manuels*, 15, 49-51.
- 10 M.G. Marin-Darbel, *Nouveau manuel complet du charron-forgeron* (Paris: Librairie encyclopédique de Roret, 1890), 137-139, 155-156, 260-267; and William N. T. Wylie, "The Blacksmith in Upper Canada, 1784-1850: A Study of Technology, Culture and Power," *Canadian Papers in Rural History* 7 (1990): 170-180.
- 11 *Canada, Industrial Census*, 1871.
- 12 A. D. Vergnaud, *Manuel complet du travail des métaux*, (Paris: Librairie encyclopédique de Roret, 1835), 174-178.
- 13 Tremblay, *Du forgeron au machiniste*, 58, 174-177.
- 14 *Ibid.*, 226-230.
- 15 Censuses of Canada: Returns for Ontario, Quebec, New Brunswick, Nova Scotia and Prince Edward Island, 1851-1911. Since the number of smiths in these returns may include farmers who had their own forges, these figures may be inflated.
- 16 William Foster, "The Blacksmiths in Charlottetown's Local History," *The Abegweit Review* (Fall 1994/Spring 1995): 103-116.
- 17 Census returns.
- 18 Halifax, Saint John, Montreal, Toronto and Hamilton Directories, 1842-1900.
- 19 Foster, *Blacksmiths in Charlottetown*, 103-116.
- 20 Pat Gill, "Blacksmithing and Woodworking at Gill's Corner," (unpublished paper written for Father Bolger's History class, University of Prince Edward Island, March 1996), 54.
- 21 P.E.I. Archives, Charlottetown, Blacksmith ledgers for Daniel Noonan (1856-66), James Power (1883-1904) and Joseph Rogers (1860-64). See also R. LaVerne Chappell, ed., *Daybooks of Benjamin Chappell, 1775-1788* (Charlottetown: PEI Genealogical Society Inc., 2003), 1-51; and J.B.C. Morrison, *Along the North Shore. A Social History of Township 11, PEI, 1765-1982* (St. Eleanor's: Author, 1983), 112-168.
- 22 NSARM, Ledger of Samuel Neily, Blacksmith, Bridgetown, Nova Scotia, 1846-1860.
- 23 LAC, Ledger of Samuel Hamilton of Lower Dumfries, New Brunswick, 1889-1899.
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- 30 In addition to the above-mentioned sources, this discussion is based on Peggy Bristow, "Black Women in Buxton and Chatham, 1850-1865," in Peggy Bristow, coordinator, *Essays in African Canadian Women's History* (Toronto: University of Toronto Press, 1994), 69-139; Adrienne Shadd, "The Lord Seemed to Say 'Go': Women and the Underground Railroad Movement," in Peggy Bristow, coordinator, *op. cit.*, 41-68. See also, Rella Braithwaite and Tessa Benn-Ireland, *Some Black Women* (Toronto: Sisters Vision, 1993), 64-91.

CHAPTER THREE

THE BLACKSMITH'S EXPERIENCE IN EARLY INDUSTRIAL CENTRES



3 The Blacksmith's Experience In Early Industrial Centres

During the second half of the nineteenth century, urban blacksmiths experienced technological and organizational changes that affected not only their economic welfare, but also their social relations within the workplace. As wage workers in factories, blacksmiths lost a large part of their former socio-economic privileges and status, but they were not passive victims of a process entirely beyond their control. This chapter shows how blacksmiths developed strategies to preserve their autonomy and parts of their legacy.

3.1 BLACKSMITHS IN FOUNDRIES AFTER 1850

Cities such as Montreal, Toronto, Hamilton and Halifax saw their number of traditional smithies reach a plateau around 1830 and diminish after 1850. Despite this decline, urban journeymen continued to multiply throughout the nineteenth century. The main reason their numbers were increasing was the growth of industries like foundries and mechanical engineering shops, which were hiring more blacksmiths.

Generally speaking, large foundries specialized in building marine and stationary steam engines, while engineering shops were usually associated with railway rolling stock. Although they made many of the same goods, the latter shops generally did not produce their own castings. New melting techniques provided foundries with the capacity to make items that were previously difficult to produce, such as steam engines, printing presses, sewing machines, fly wheels and intricate gears (fig. 3.1). Many foundries combined both castings and wrought iron fittings in their products, which meant that a significant number of smiths and moulders, as well as other craftsmen, were working under the same roof.

In Upper Canada, foundries began appearing near agricultural areas but soon became concentrated in urban centres like Toronto, where the number of foundries grew from two in 1828 to five in 1881.¹ The situation was different in Lower Canada, where foundries developed first around Montreal, which already had 13 by 1851 (eight more than Toronto).² While the smaller foundries hired a few moulders on a temporary basis, industrial firms began recruiting a diversity of ironworkers who split up into separate departments (moulding, patternmaking, machining, boilermaking, blacksmithing and finishing), each corresponding to a

particular trade. Blacksmithing was always an important component of foundry work, since many items produced by such establishments required wrought iron fittings. In Toronto, for example, the Dutcher Engine Foundry had five circular forges powered by a mechanized blowing apparatus as early as 1840.³ Twenty years later, Montreal's St. Lawrence Engine Foundry included a blacksmith shop endowed with nine hearths around which 45 smiths (out of 190 employees) laboured. They were busy working not only with hand tools, but also with a trip-hammer, roller bending devices and several milling machines, all driven mechanically either by a small steam engine or by a hydraulic wheel.⁴ This kind of rational organization greatly improved the efficiency of foundries, while maintaining a functional autonomy among skilled labourers.

In blacksmithing departments, small objects like bolts, rivets and latch pins were made with the assistance of portable forges. But when large pieces like marine engine shafts (some of which were 18 feet long and 10 inches in diameter) had to be fashioned, blacksmiths worked around a circular forge. In order to move these heavy products, mechanical cranes were installed nearby. To forge a shaft, it was necessary to heat scrap iron at high temperatures until it turned into an incandescent mass. After a first group of smiths sledgehammered the red-hot metals to expel impurities, another team flattened the metal to produce the general shape of an elongated rod. The

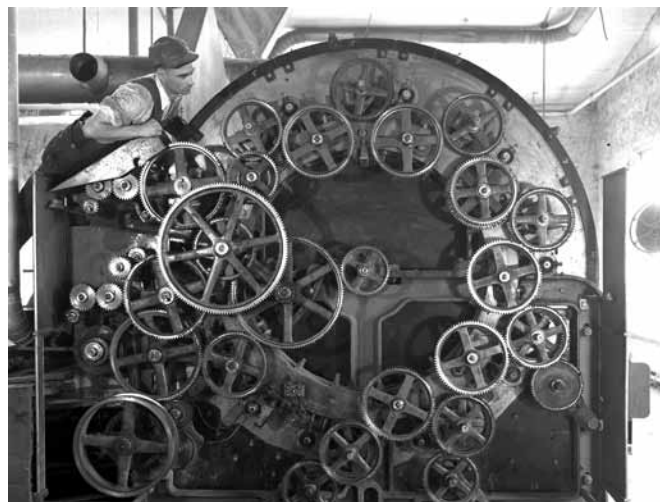


Figure 3.1: Gears and machinery made at the Plessisville Foundry, Plessisville, Quebec in the early twentieth century [BANQ, E6, S7, SS1, P77128]

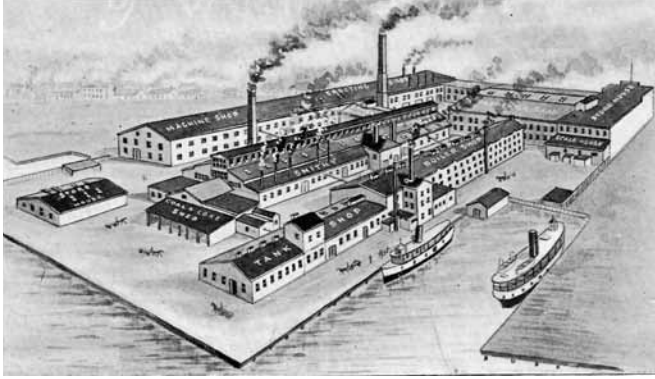


Figure 3.2: Canadian Locomotive Works, Kingston, Ontario, 1880 (Queens University Archives, CLC, record of printing plates)

material was then reheated and the metal rod stamped out by a mechanical hammer. This operation gave the metal the final shape of a marine engine shaft. During the process of forging these pieces, smiths threw water on the work to create a scale-like substance that would protect the iron against future corrosion. Soon after, a specialist measured the diameter of the shaft with calipers to check that its size corresponded to the standard gauge. Any required filing was completed by an engineer.⁵

Local and transcontinental railways played a key role in developing the mechanical engineering sector in Canada, notably during the crucial stage of infrastructure construction between 1850 and 1880. Firms emanating from this process were the avant-garde of industrial capitalism. Having started with the establishment of independent locomotive works in Kingston (fig 3.2) and Toronto during the 1850s, this process rapidly spread to the two main railroads—the Grand Trunk Railway (GTR) and the Great Western Railway (GWR)—which opened mechanical shops for their rolling stock supplies first in Montreal and later in London, Brantford, Stratford and Hamilton.

These plants were probably the largest and most modern manufacturing entities in the country. They were usually divided in two principal departments—one devoted to railway car manufacturing and the other to locomotive engineering—each housing a blacksmith shop for its specific needs in wrought iron components (bolts, springs, wheels, cranks and others) (fig.3.3). In these sites, numerous smiths could be seen working in the glow of 25 or 30 fires, and equipped with the latest tools, such as Nasmyth steam hammers for forging axles, vertical lathes for boring cylinders, and double shaping apparatus for tooling car springs.⁶ The number of smiths working for these plants varied depending on the size of orders for each department (locomotive and railway car). In the midst of the railway fever of the 1850s, there were,

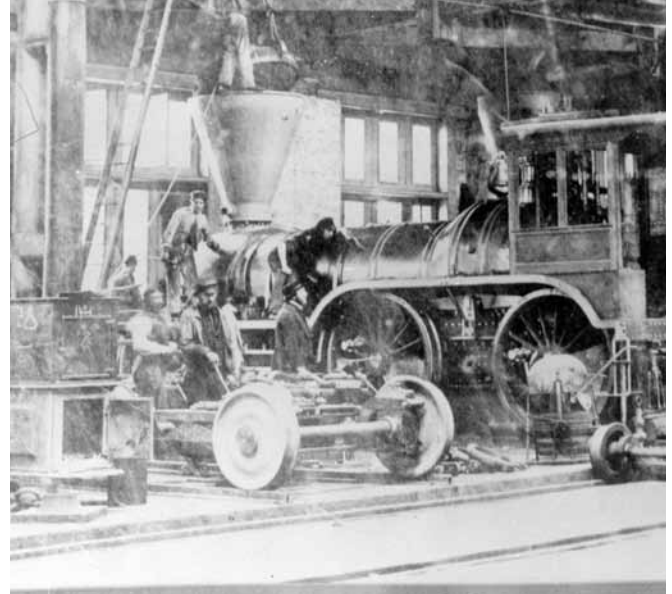


Figure 3.3: Locomotive erecting shop, Grand Trunk Railway Co., Pointe Saint-Charles, Quebec, 1860 (LAC, PA-202438)

for instance, 53 blacksmiths and 72 strikers working for the GTR, and 20 blacksmiths and 29 strikers labouring for the GWR.⁷

Although less important, agricultural implement production also contributed to the growth of the mechanical engineering sector. Since Montreal had four threshing machine manufacturers in the mid-nineteenth century, it was once again a precursor of industrial development. One manufacturer, B.P. Paige and Co. (1848-1861), was the product of a £37,000 investment that enabled its owner to deliver 500 threshing machines per year. Mr. Paige had also brought almost all of his 175 employees (of which 30 were smiths) from another plant situated in Warner, New Hampshire.⁸ Ontario, which already included 38 small agricultural implement companies at the beginning of the 1850s, soon became the main producer in this field. Brand names like A. Harris Son & Co. and Cockshutt Plow Co. in Brantford, and Massey Manufacturing Co. and John Abell in Toronto, whose factories employed between 200 and 300 workers, including smiths, dominated the national market by the 1880s.⁹

In these high-tech foundries and mechanical engineering plants, the blacksmith was no longer a versatile craftsman involved in all the stages of production. The new industrial division of labour involved smiths in limited operations, such as striking and drawing hot metals. Now bench work was undertaken by a new category of worker: the engineer. In other words, the dressing of wrought iron occupied the major part of the smith's work, while the finishing aspect of the labour process slipped more and more out of his hands.¹⁰

Labour relations were also being modified, since wages were increasingly based on free market laws that benefited the industrial entrepreneur more than the workers. But workers were not passive victims of these changes. While the blacksmith's expertise was still indispensable to the efficient operation of these factories, compromises were possible between smiths and their managers. In fact, several railway companies would concede to tradesmen work quotas and partial supervision over apprentices in exchange for long and difficult workdays. For a while, blacksmiths were able to emphasize their technical legacy and status to preserve functional autonomy within a rapidly changing industrial environment.

3.2 EROSION OF THE APPRENTICESHIP SYSTEM

During the first half of the nineteenth century, the apprenticeship system acted as an important rite of passage that gave aspiring young smiths the opportunity to learn the technical and moral aspects of their trade. It was also a means to regulate standards, and occasionally a way to limit entrance into the profession. With the exception of large artisan shops, the traditional characteristics of apprenticeship remained almost unchanged in central and eastern Canada until the 1850s.¹¹ After that date, it became difficult to preserve the status quo. Although old practices survived in the countryside until at least the First World War, those in industrial centres were seriously modified. The different pace of changes occurring in urban and rural areas was related to the degree of penetration of the market economy in each place.

During the latter half of nineteenth century, the earlier system of apprenticeship was modified to adapt to the emerging urban and industrial environment. Industrialists dealing with the need to hire large workforces did not want the responsibility of feeding, lodging or educating apprentices in reading, writing and arithmetic. Thus, an increasing number of employers (e.g., 80 per cent in Montreal between 1850 and 1860) decided not to provide room and board for their apprentices, preferring instead to pay them a small salary. Apprenticeship terms were also diminishing, dropping from an average of 4.2 years to 2.5 years.¹² While old-timers deplored the young smiths' lack of experience, educators suggested that students leaving school at about 16 years-of-age did not want to start a long apprenticeship—they wanted good salaries and equity with older workers as soon as possible.¹³

Meanwhile, clauses concerning desertion or work schedules were disappearing in apprenticeship deeds, since these issues were generally addressed in the Canadian legal system or integrated into strict factory regulations.



Figure 3.4: Blacksmith class at the Manitoba Agricultural College, Winnipeg, 1917 (LAC, PA-88418)

The most revealing clauses about the changing context of industrialization were those added by employers during that period. One such clause mentioned that foundry managers could use blacksmith apprentices to do duties unrelated to their skills, provided such an arrangement did not infringe on the duties of other trades. The principal motive behind this measure was the rationalization of time during unoccupied periods. Other clauses, such as one that banned “corporation work,” also reflected the atmosphere prevailing in factories during the early stages of industrialization. “Corporation work”—using shop implements to do personal work—was a traditional worker's practice that was recognized as acceptable by master artisans since the seventeenth century and that had continued to survive after 1850.¹⁴ Finally, there were clauses that prohibited apprentices from joining labour unions. Those failing to respect such constraints were severely punished.¹⁵

After 1850, arrangements also had to be found to provide industrial entrepreneurs in the metalworking sector with a constant supply of skilled workers. A compromise took shape that involved acceptance of the wage system by skilled labour, with an assurance that smiths and other tradesmen would continue to control the training of their apprentices. In other words, young smiths would continue to learn the rudiments of the trade under the supervision of experienced ones.¹⁶ Signs of crises were nevertheless emerging in large urban factories. Given the ever-increasing necessity to hire skilled labour, these enterprises were unable to meet their labour needs via the existing system of apprenticeship. After Confederation, programs designed to teach the art of blacksmithing were started by Mechanics' Institutes and, later, by technical schools to compensate for the failure of the apprenticeship system.

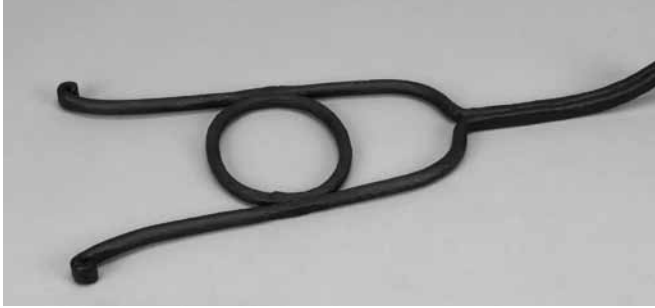


Figure 3.5: Implement used by smiths to keep horse's mouth open while working on its teeth, Quebec (CMC, D2007-3527)



Figure 3.6: Nose twister used in the nineteenth century to quiet a restless horse while it was being shod, Portneuf, Quebec (CMC, D2007-7201)



Figure 3.7: Drenching funnel used to nurse sick horses (NSM)

Technical schools were founded in the early twentieth century in major centres throughout central and eastern Canada. They offered training in a variety of occupations, including courses in dealing with the forge, the foundry and the automobile. In the 1920s, the first-year course in a three year program for 16-year-olds enrolled in blacksmithing emphasized reading, writing, arithmetic and an understanding of the effect of temperature changes on steel. The second year included practical lessons in foundry work, woodwork, the forge, machinery and other aspects of metalwork.¹⁷ Students chose a specialization in the final year. By the early twentieth century, welding was an integral part of the degree in blacksmithing (fig.3.4).¹⁸

In order to improve the knowledge of practising smiths, other institutions and associations also offered courses. In the early twentieth century, associations of blacksmith-farriers offered their members 20 classes that could be taken either during the day or the evening over a two-year period. An emphasis on caring for horses included classes given by veterinarians. Successful students received a diploma.¹⁹ Although these classes and schools still existed in many cities in the 1940s, they were largely absent from the countryside. In rural areas, the lack of veterinarian training meant that farmers and smiths continued to treat sick horses with traditional remedies, including bloodletting (fig.3.5, 3.6 & 3.7).

3.3 TECHNOLOGICAL CHANGES

The first innovation that initiated a break in the traditional art of blacksmithing was undoubtedly the portable forge (fig. 3.8). Light and easy to carry, the portable forge was renowned for its efficient air-blowing system, operated in the beginning by a hand lever or a foot treadle, and, later, by a crank. Early models were used between 1790 and 1815 on war ships for repairing artillery pieces and on battlefields for shoeing cavalry horses. Once adopted by civilian smiths in the mid-nineteenth century, the new apparatus provoked a shock wave in the wrought iron sector, since it gave smiths greater mobility and flexibility—essential prerequisites for the smiths' integration into metalworking factories or large naval yards. Because they could be easily moved close to an object being produced, portable forges were popular not only in mining and logging camps, but also in foundries and mechanical engineering works. Such portability was especially important when a large supply of hot rivets was required for quickly assembling parts of a steam engine or a locomotive.²⁰

The trip-hammer also had a significant impact on the blacksmith's work as it both lightened the tasks and made part of them redundant (fig.3.9). Although invented about 1680, the trip-hammer was not adapted to the needs of the blacksmith shop until 1800. Operating with the aid of a horizontal arm activated either by a hydraulic cam or a steam



Figure 3.8: Portable forge: standard model employed by blacksmiths, late nineteenth century (CSTM, Trade Lit.: Buffalo Forge Co., *Illustrated General Catalogue*, Buffalo, 1896, p.294)

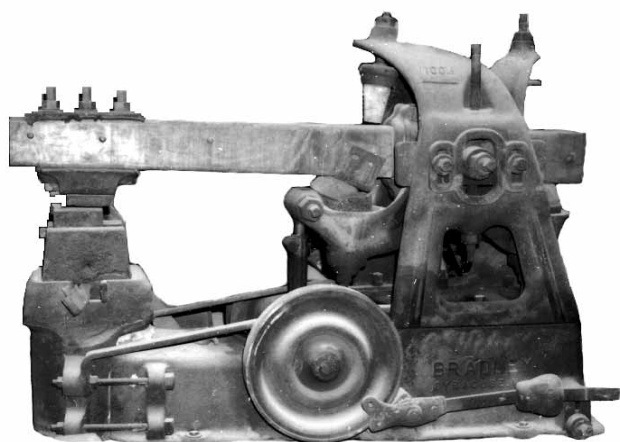


Figure 3.9: Trip-hammer used in Canadian metalworking factories around 1880 (CSTM, Artefact Collection, #730680)

engine (via a system of belts and wheels), the trip-hammer was well-suited for shaping a number of structural parts. One of Canada's first trip-hammers was used in the 1830s by Montreal foundry-man and blacksmith John D. Ward, who introduced it as a labour-saving device for hammering steam engine shafts. Once embraced by industry, these machines spread quickly.²¹

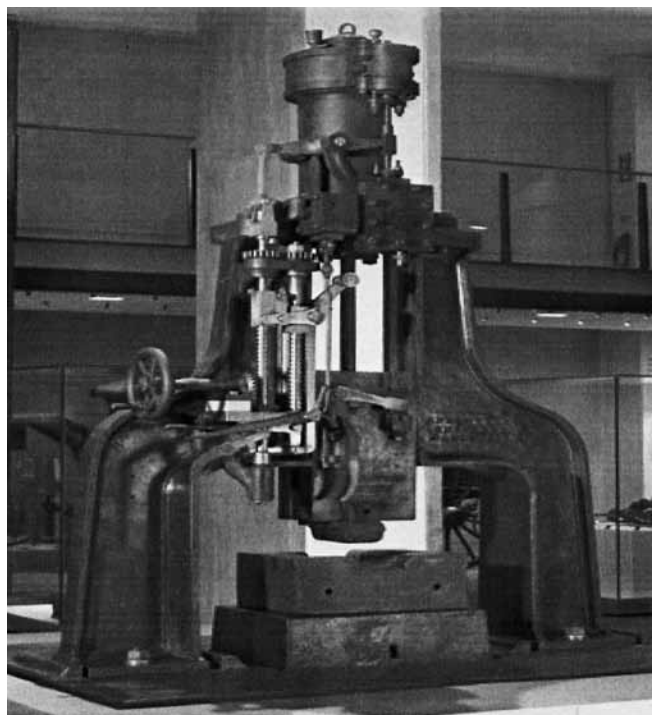


Figure 3.10: Steam hammer similar to one invented by the British engineer James Nasmyth, c.1840 (http://www.makingthemodernworld.org.uk/icons_of_invention/img/IM.1190_el.jpg)

Although serviceable, the trip-hammer had the inconvenience of being unstable and of bouncing when striking a piece of iron on a die. In the 1840s, the British engineer James Nasmyth solved these problems by inventing a steam hammer equipped with both an automatic and vertical mechanism (fig.3.10). The steam hammer allowed steam to enter into a cylinder at the top of the machine in order to elevate a ram; once reaching the appropriate level, the ram dropped automatically on the object below. This mechanical hammer was particularly useful in Canadian locomotive works, where it served from 1858 to shape large pieces such as axles, connecting rods and springs. But the Nasmyth steam hammer was still slow to operate and very expensive in terms of fuel consumption²². That's why, by 1870, many metalworking manufacturers began to adopt the new efficient and compact drop hammer (fig.3.11 & 3.12).

The roller bending machine was another forming tool that facilitated the shaping of sheet iron used for steam boilers (fig.3.13 & 3.14). Earlier models, furnished with three rollers and two hand wheels, were available during the 1820s. This was probably the type of machine that John Bennet and John Henderson, the owners of Montreal's St. Mary's Steam Engine Foundry, noted in their 1835 inventory.²³ Unable to roll thick iron plates, hand bending machines were soon replaced by powered ones. Several of them were introduced



Figure 3.11: Flattening an iron bar with a mechanical drop-hammer, Port Mann, British Columbia, 1948 [CSTM, CN Collection, #761]



Figure 3.12: Forging the barrel of a field gun with a mechanical drop-hammer, Sorel, Quebec, 1941 [LAC, E-760582]



Figure 3.13: Roller bending machine made by the Canadian manufacturer J. Smart Manufacturing Co., Brockville, Ontario, 1885 [CSTM, Trade Lit.: J. Smart Manufacturing Co., *Catalogue of Hardware*, Brockville, 1885, p.154]

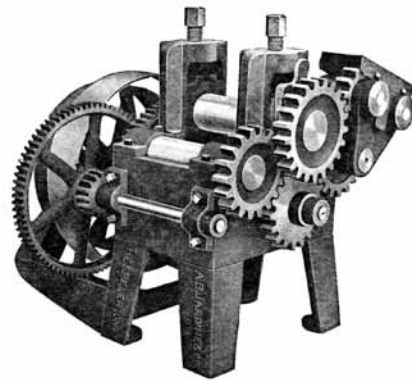


Figure 3.14: Roller bending machine made by the Canadian manufacturer A. B. Jardine & Co., Hespeler, Ontario, 1917 [CSTM, Trade Lit.: A. B. Jardine & Co., *The Toolmakers ...*, Hespeler, Ont., 1917, p.51]



Figure 3.15: Continuous shearing machine used by blacksmiths during the nineteenth century [CSTM, Trade Lit.: Buffalo Forge Co., *Illustrated Catalogue*, Buffalo, N.Y., 1896, p.326]



Figure 3.16: Blacksmith shop equipped with both traditional and new technology (Glenbow Museum, NA-846-2)

during the 1850s in places like the St. Lawrence Engine Works (Montreal) and the James Good Locomotive Works (Toronto).²⁴ Complementing roller bending techniques, the shaping machine was a sort of stamping press. Blacksmiths used it, along with appropriate dies, to make intaglio designs on iron sheets. Patented in 1843 by the same James Nasmyth who had invented the steam hammer, the shaping machine was popular in metalworking factories during the 1860s.²⁵

While shearing machines operated by a hand lever were being used in tinsmith's shops since the mid-eighteenth century, it was not until 1800 that these devices were adopted by blacksmiths (fig. 3.15). In Canada, Joseph Lough, a Montreal blacksmith and engine founder, was one of the first smiths to introduce this particular device in his shop. He owned seven of them in 1819. Although several improvements were made, the next breakthrough in this field was achieved in the 1840s when a British engineer, Richard Roberts, perfected a steam-powered machine that combined iron-sheet cutting and punching operations. Sources reveal that the Great Western Railway (Hamilton) used this model in 1853²⁶. It took, however, an additional 20 years before Canadian blacksmiths adopted other mechanical apparatus, such as nut-millers or drilling machines.

In fact, the introduction of machine tools into blacksmith shops operating within large industrial plants created a multitude of manual tasks that contributed for a while to a diversification of manual tools. Since completely automatic operations were still impossible during the nineteenth century, a number of minor functions had to be performed by hand to lessen the bottleneck created by the accelerated pace of machines. The limitations of early machine tools also required



Figure 3.17: Large assortment of tongs employed by Canadian blacksmiths (Glenbow Museum, NA-3535-37)

numerous corrective tasks that were performed by hand tools. While traditional tools like anvils, hammers, pliers and tongs (of which there were at least 40 types by mid-century) tended to multiply, such new ones as die stocks, reamers, braces and abrasive wheels were also appearing at the same time (fig. 3.16 & 3.17).²⁷

After 1880, a new alloy called high-speed steel was used to produce stronger and more flexible cutters, which facilitated the construction of an unprecedented number of new metalworking machines.²⁸ The introduction of new equipment in blacksmith shops would not only make some tools—and the knowledge that accompanied them—obsolete, it would also weaken the position of blacksmiths in large factories. Blacksmiths henceforth had to compete more than ever with members of mechanized trades, such as machinists and engineers.

3.4 WORKING AND LIVING CONDITIONS

Since many blacksmiths who settled in cities after 1850 gained their first experience in factories, it was important for employers to instill in them a sense of industrial discipline. Thus, some employers resorted to various measures (e.g., locking doors at the appointed hour for the beginning of the work day, deducting double the time lost at work) in order to condition their workers to be punctual and to respect the new time-scheduling requirements of the industrial era. To address worker absenteeism, entrepreneurs could also invoke the old laws, dating from the artisan era, that criminalized

such behavior. Working hours were based on delivery dates and the number of orders that a company could receive, but generally, until the late nineteenth century, the workweek in industrial plants was 60 hours, including ten hours per day, six days a week.²⁹

Many observers decried unhealthy workplaces, particularly shop forges operating in industrial complexes. These forges were small, had poor ventilation and lacked sanitation. Also, the equipment in place was not always designed to protect workers: they were often victims of boiler explosions, burns caused by shards of hot metal, deafness caused by the incessant noise of the machines, or crushed limbs by one of many belts powering the machine tools.

Although blacksmiths in factories earned higher wages than workers in the footwear and garment industries, the incomes of the former were still just enough to ensure a minimum living for their families. This situation was aggravated by the fact that, between 1850 and 1880, Canadian cities began to ban the breeding of animals and to restrict the cultivation of vegetable gardens in residential areas—two activities that had previously allowed working-class families to supplement their incomes. According to surveys conducted in 1882, 1887 and 1891, a blacksmith in Montreal received between \$1.50 and \$2.00 per day, which was equivalent to the salary of a carpenter or a fitter.³⁰

“Family dynasties” in trades like moulders, shipwrights and typographers did not exist among industrial blacksmiths. This situation may be due, in part at least, to the poor salaries of the smiths. At most, the recurrence of smiths’ names in census returns, such as Guénette, Cannon, Murphy, Rapple and Smith reflects the presence of some family ties in the transmission of the trade. But they were not sufficiently entrenched to suggest a control of blacksmithing by families: in 1861, of the 60 blacksmiths in Montreal for which information was obtained, only 19 came from the families of blacksmiths, 19 were from families engaged in another trade and 16 had grown up in families of day labourers. Clearly, the world of blacksmiths was not a closed microcosm.³¹

In the nineteenth century, nascent industrialization and increasing urbanization brought a great number of people to confined spaces. This high density did not occur without affecting health and living conditions in urban areas, especially in working-class neighbourhoods where water and sewer systems were often absent. It is not surprising then that epidemics of smallpox and typhoid, such as those that occurred in 1885 in Montreal, were first found in working-class neighbourhoods, which were more affected by these outbreaks than affluent neighbourhoods. Inadequate incomes also prevented many workers from living in salubrious homes or having healthy diets, which might have helped protect them from disease.³²

Recent studies have shown that, with an average salary of \$1.75 per day in the late nineteenth century, a blacksmith could just afford to feed and house his family, provided that he had steady work and had no more than three children over the age of 12. These studies emphasize the importance of the survival strategies of working-class households and the crucial role women’s domestic work played in maintaining the family in difficult times.³³

In the beginning, it was relatively easy for wage-earners to become owner-occupants of a small house in the new working-class districts of large cities. This situation changed, however, when a speculative market took shape and subdivisions became subject to the payment of municipal taxes. Under such circumstances and now unable to acquire property, many workers had no choice but to become tenants. In Montreal, many blacksmiths were renting after 1870. Most of them, however, did not seem to suffer from overcrowding: when a household grew beyond five, the trend was to move to a house with four or more rooms. In addition, like other working-class families, blacksmiths’ households were almost entirely composed of simple nuclear families without boarders.³⁴

The working-class neighbourhoods of the late nineteenth century were known for their high rate of turnover and their relative mix of people. Recent studies show that the ethnic configuration of neighbourhoods was among the factors skilled workers considered when choosing a place of residence. Thus, in Montreal, francophone blacksmiths tended to settle near the Lachine Canal in the working-class portion of the Saint-Antoine suburb already occupied by a French Canadian majority, while blacksmiths from the British Isles tended to settle in the nearby industrial area of Sainte-Anne/Griffintown.³⁵

3.5 TRADITIONAL ETHICS AND NEW ASPIRATIONS

Even though they were working in a less regulated context, Canadian blacksmiths perpetuated many of the traditional ethics inherited from European guilds. Like their British and French counterparts, Canadians developed a strong sense of pride and respectability. Since their multi-functional activities rendered their skills indispensable to the community, blacksmiths perceived themselves as a central component of society. They also took pride in their training, which gave them a higher degree of literacy and knowledge than the average person. However, the element that contributed most to their sense of having a high social status and independence was their ownership of tools, as well as shops, dwellings and land. On the other hand, a profound sense of equality, reciprocity and mutuality towards other artisans placed Canadian blacksmiths at the forefront of a new democratic ideal, which was demonstrated by their constant commitment to local

Thursday, 3 o'clock, P. M.
7th December.

The party of Rebels, under their Chief leaders are wholly dispersed, and flying before the loyal Militia. The only thing that remains to be done, is to find them, and arrest them.

Description of the Rebels.

ONE THOUSAND POUNDS REWARD

for the apprehension of W. Lyon Mackenzie. He is a short man, wears a sandy coloured Wig, has small twinkling eyes that can look no man in the face—he is about 5 feet 4 or 5 inches in height.

£500 REWARD FOR DAVID GIBSON.

He is about 5 feet 9 or 10 inches in height, red faced—Sandy hair and red whiskers which grow rather closely—rather round shouldered—speaks with a strong Scotch accent—age about 35

£500 FOR SAMUEL LOUNT,

a tall man, say 6 feet or rather more, long face, Sallow complexion—black hair with some grey in it—very heavy dark eye brows—speaks rather slowly.

£500 FOR SILAS FLETCHER,

he is about 50 years of age, hair has been black but now mixed with grey—speaks in a peculiar and quick manner—very quick in his motions—black whiskers and rather sallow complexion—about 5 feet in height, and upright.

£500 FOR JESSE LOYD,

he is rather an old man, say about 55 years of age, long straight hair rather thin and turning grey—stoops very much in his gait, has scarcely any teeth left—one remarkably prominent which is much observed when he speaks, very square shouldered, and speaks with a strong yankee accent, height about 5 feet 10 or 11 inches, generally dresses in a drab or brown home spun clothing.

Figure 3.18: Reward offered for the capture of the Upper Canadian Patriot Samuel Lount, 1837
(<http://www.samuel.lount.org/>)

affairs through district assemblies and parish institutions during the nineteenth century³⁶.

This overlapping of ancient and modern values is typical of transitional periods during which a multitude of possibilities arise. Although a combination of conservative views and democratic aspirations might seem contradictory, it was a normal product of the times. This is one of the reasons why so many Upper and Lower Canadian blacksmiths supported

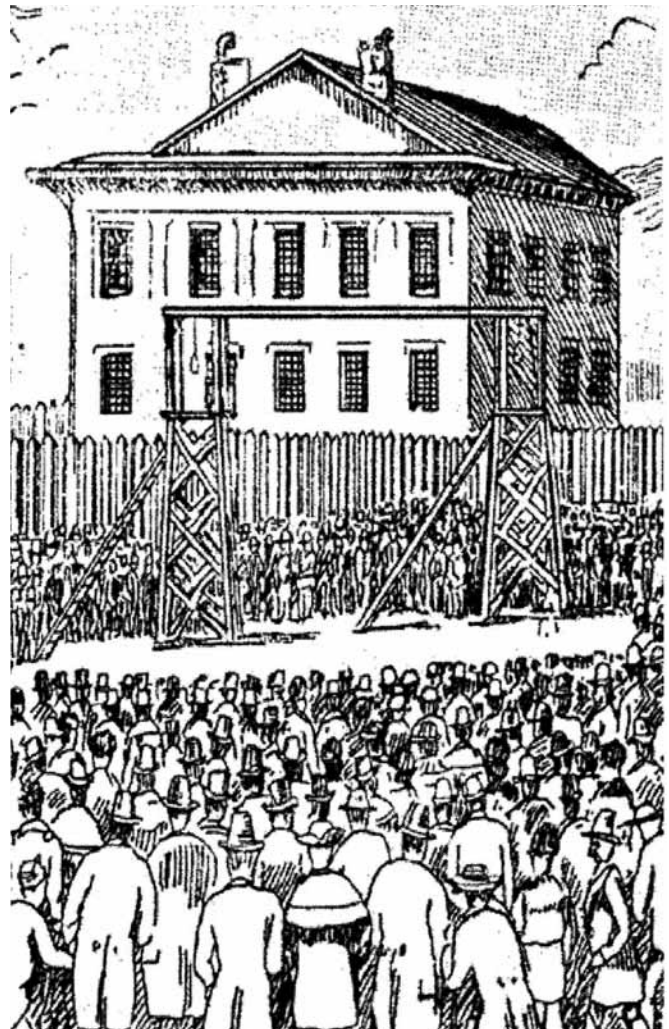


Figure 3.19: Hanging of Samuel Lount, 1837
(<http://www.samuel.lount.org/>)

the Tory Party when the 1837-38 rebellions occurred: they thought that conservative politicians were most likely to preserve the ancient order against the effects of economic and political modernization. Other blacksmiths held the firm conviction that the democratic and anti-colonial platform of the Papineau-Mackenzie patriots were a prelude to an egalitarian society that would be advantageous to artisans.³⁷ In Lower Canada, six blacksmiths were imprisoned during the rebellions—five were court-martialled, and two of which were deported to Australia. Finally, the Upper Canadian blacksmith and patriot Samuel Lount, brother-in-arms of William Lyon Mackenzie, was hanged for sedition (fig.3.18 & 3.19).³⁸

A similar set of values and beliefs were at work when blacksmiths tackled the new industrial labour environment. These qualities were particularly obvious when conflicts occurred between blacksmiths and their employers. On



Figure 3.20: The Nine-Hour Movement procession in Hamilton, Ontario, 1872 (*Canadian Illustrated News*, June 8, 1872)

these occasions, an artisanal ideology that included craft pride, personal dignity, independence, hierarchy and mutual obligation seemed to take precedence over class consciousness. These values were present in the attitudes and actions of Montreal blacksmiths in 1834, who willingly went on strike to obtain a just price for their work in a local gunsmith's shop, but who hesitated at the same time to join the Ten-Hour Movement initiated by the City's carpenters and masons.³⁹

Craft pride also played an important role in 1853, when 200 farriers (among a group of 5,000 mechanics and manufacturers) paraded with their banners and emblems in the streets of Saint John, New Brunswick, to celebrate the coming of the railway era. This kind of self-esteem prevailed three years later when the Grand Trunk Railway smiths met in Montreal to protest against an article published in the newspaper the *Pilot*, which criticized the quality of cars that smiths and other skilled workers had built.⁴⁰

The way blacksmiths dealt with industrial disputes in railways is also revealing about their sense of rank and deference towards entrepreneurs. During the brief strike of 1856 at Hamilton's Great Western Railway works, blacksmiths and other skilled workers were invited by the company's manager, Charles John Brydges, to reach an agreement for the reinstatement of a popular foreman who had been unfairly dismissed and for reconciliation with a superintendant involved in the conflict. Well-organized negotiations brought about a quick compromise. Common ground was also reached at the Montreal's Grand Trunk Railway works in 1859 after blacksmiths and machinists threatened to strike when rumours were circulating about a 10 per cent wage cut. These two events occurred during a transitional period when many

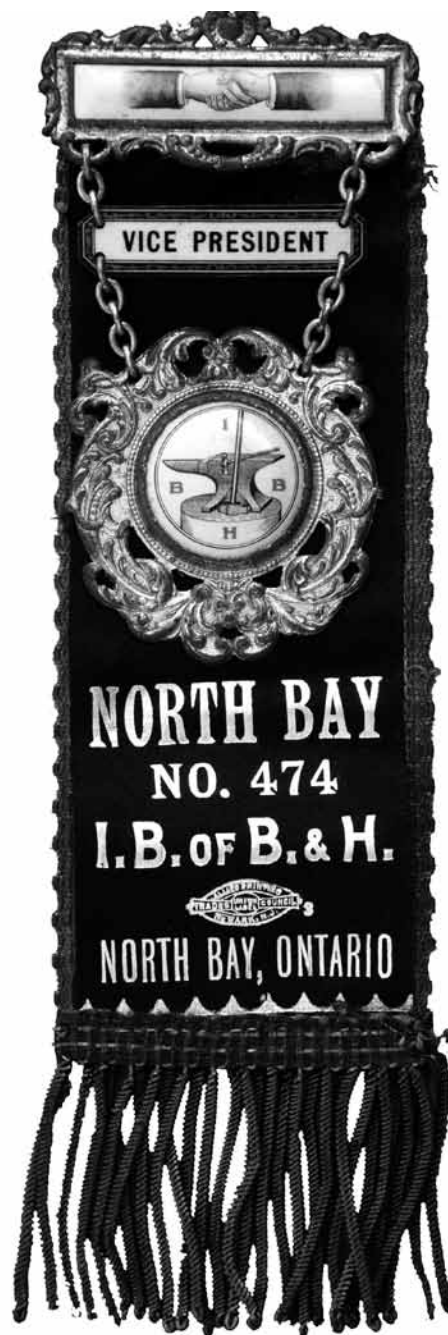


Figure 3.21: Ribbon of the North Bay, Ontario, local of the International Brotherhood of Blacksmiths and Helpers, c. 1910 (David Yorke Collection)

blacksmiths exchanged their independence and ownership rights for recognition of a certain status within larger firms, which they hoped would help them achieve new aspirations.⁴¹

During the latter part of the nineteenth century, a sense of solidarity among blacksmiths made them more receptive to the grievances of other trades. Thus, the creation in 1871 of strong unions of machinists and blacksmiths prepared them

for strikes a year later over the working-class demands for a nine-hour day (fig.3.20).⁴² A decade later, another union, inspired by the ideals of fraternity and solidarity among skilled and unskilled workers without distinction of sex or race, emphasized arbitration as a way of settling differences with management. Called the Knights of Labor⁴³, this union supported, however, numerous strikes, including one in 1886 at the Massey agricultural implement plant in Toronto. This strike involved a united group of blacksmiths, machinists, fitters and finishers affiliated to the Knights. Irregular payments and salary inconsistencies were at the origin of the conflict, as well as the firing of five prominent union members. Since the resolution of this conflict was seen as a victory for the union, it helped the Knights gain support among other workers in Toronto and elsewhere in Canada.⁴⁴

In their action against Massey, strikers were led by a learned blacksmith named Samuel McNab. Born in the United States in 1853, McNab completed an apprenticeship at Toronto's St. Lawrence Foundry around 1872, at the time of the Nine-Hour Movement. He then went to work in the United States. When he returned to Toronto, McNab helped

metal workers of the Massey plant join the Knights of Labor in 1883. His buoyant character and dedicated militancy gained him recognition. After he was promoted to the rank of District Master Workman, McNab advocated "home rule" for the union's local assemblies in Canada.⁴⁵

The collective actions of blacksmiths were the exception during the end of nineteenth century. Unlike moulders, printers, shoemakers and coopers, blacksmiths demonstrated little resistance to the technological and managerial changes affecting their trade. Their position was weakened by the growing presence of machinists and the preference of union leaders to support the machinists instead of blacksmiths. Although scarce, independent actions by blacksmiths continued, as shown by the 1898 strike at the Bertram shipyard in Toronto.⁴⁶ They also played a role in the creation of the Winnipeg Trades and Labour Council, which was particularly active during the depression years of 1905-1907, as well as during the Winnipeg General Strike of 1919 (fig. 3.21).⁴⁷ But these actions were among the last by a group of skilled workers whose world was shattered by continuous changes resulting from industrialization.

NOTES

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- 2 Robert Tremblay, *Du forgeron au machiniste: l'impact social de la mécanisation des opérations d'usinage dans l'industrie de la métallurgie à Montréal, de 1815 à 1860* (PhD thesis, Université du Québec à Montréal, 1992), 58.
- 3 Wylie, "The Blacksmith in Upper Canada", 39.
- 4 LAC, *Census Returns (for Montreal), Folio 3196*; and *Montreal Business Sketches with a Description of the City of Montreal* (Montreal, 1864), 133-136.
- 5 J. Abbott, "The Novelty Iron Works with some Description of the Machinery and Processes Employed in the Construction of Marine Steam Engines of the Largest Class," *Harper's New Monthly Magazine*, 2 (May 1851): 731-732.
- 6 P. Craven and T. Traves, "Canadian Railways as Manufacturers, 1850-80," (draft version), 21, 28, published in a shorter version in Canadian Historical Association, *Historical Papers* (1986), 254-281.
- 7 P. Craven and T. Traves, "Dimension of Paternalism in Canadian Railway Operations of the 1850s," in C. Heron and R. Storey, dir., *On the Job: Confronting the Labour Process in Canada* (Montreal: McGill/Queen's University Press, 1986), 55.
- 8 LAC, *Census Returns (for Montreal), Folio 10 819*; and *Montreal Gazette*, June 18, 1859.
- 9 Kealey, op. cit., 317.
- 10 Tremblay, *Du forgeron au machiniste*, 239-240.
- 11 Wylie, "The Blacksmith in Upper Canada", 51.
- 12 These statistics are based on an analysis of 47 apprenticeship deeds in Montreal between 1815 and 1840, and 73 of the same between 1850 and 1860. See Tremblay, *Du forgeron au machiniste*, 284-295.
- 13 J.-H. Buteau, *Notre enseignement technique et industriel*, (Québec: Le Soleil, 1919), 29-30.
- 14 "Corporation work" was a mark of craft status in an industrial environment, since, for an apprentice on duty, doing personal work was a means to assert his professional autonomy. The expression refers to trade associations that were active in European countries from the end of the Middle Ages to the end of the seventeenth century. See K. Burgess, "Technological Change and the 1852 Lock-out in the British Engineering Industry," *International Review of Social History*, 14 (1969): 220.
- 15 Tremblay, *Du forgeron au machiniste*, 284-295.
- 16 Ibid., 294.
- 17 Additional information on the technical schools can be found in newspapers, yearly almanacs and in the *Royal Commission on Technical Schools*. See, for example, *Le Soleil*, July 2, 1924 and July 4, 1925; *L'Action*, February 16, 1927; the *Almanach Beauchemin*, 1936 (Québec: Librairie Langlais, 1935), 10, 183, 209; and the *Commission royale sur l'enseignement technique et industriel, Partie IV* (Ottawa: 1914), 2000. For a summary of courses given by the Association des Maréchaux-Ferrants de Québec, see their "Compte rendu des cours de maréchalerie" for April 1932, CMC Archives, Hull, Québec.
- 18 P. Fontanel, *La formation technique* (Montréal: École sociale populaire, 1928), 6-18, 31-33.
- 19 C. Morel, "Fraternity in the Craft," *Canadian Blacksmith and Woodworker Journal* (March 1927): 20-21.

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- 21 Robert Tremblay, *Histoire des outils manuels au Canada, de 1820 à 1960: héritage européen, techniques de fabrication et entreprises manufacturières*, Transformation Series #10, (Ottawa: CSTM, 2001), 14; and *Montreal Gazette*, July 16, 1831.
- 22 Tremblay, *Du forgeron au machiniste*, 113, 116-118, 159.
- 23 BANQ, Montreal, Notarial Deeds #3884, G. D. Arnoldi, January 2, 1835.
- 24 LAC, *Census Returns (for Montreal)*, Folio 3196; and Craven and Traves, "Canadian Railways as Manufacturers," 5.
- 25 B. Woodcroft, *Alphabetical Index of Patentees of Inventions, 1617-1852* (London: Evelyn, Adams & MacKay, 1969; first published in 1854), 397; and Tremblay, *Du forgeron au machiniste*, 159.
- 26 Tremblay, *Du forgeron au machiniste*, 164-165, 179-180; Craven and Traves, "Canadian Railways as Manufacturers," 19; and Woodcroft, *Alphabetical Index of Patentees*, 482.
- 27 R. Samuel, "The Workshop of the World: Steam Power and Hand Technology in Mid-Victorian Britain," *History Workshop Journal*, 3 (Spring 1977): 39-44.
- 28 Tremblay, *Histoire des outils manuels*, 18-19.
- 29 Tremblay, *Du forgeron au machiniste*, 298-306; and Craven and Traves, "Dimension of Paternalism," 49-52.
- 30 J. De Bonville, *Jean-Baptiste Gagnepetit: les travailleurs montréalais à la fin du XIXe siècle* (Montréal: Aurore, 1975), 87, 90; and Bettina Bradbury, *Familles ouvrières à Montréal: âge, genre et survie quotidienne pendant la phase d'industrialisation* (Montréal: Boréal, 1995), 57.
- 31 Tremblay, *Du forgeron au machiniste*, 264-266.
- 32 De Bonville, *Jean-Baptiste Gagnepetit*, 128-131; and P.A. Linteau, R. Durocher and J.C. Robert, *Histoire du Québec contemporain: de la Confédération à la crise* (Montréal: Boréal, 1979), 186-190.
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- 34 G. Lauzon, *Habitat ouvrier et révolution industrielle: le cas du village St-Augustin* (Montréal: Collection du RCHTQ, 1989), 188-192.
- 35 Tremblay, *Du forgeron au machiniste*, 277, 280-281; and P. Bischoff, *Les ouvriers mouleurs à Montréal, 1859-1881* (Master's thesis, Université du Québec à Montréal, 1986), 90.
- 36 Wylie, "The Blacksmith in Upper Canada", 57-59.
- 37 Ibid., 63, 65-67.
- 38 C. Lipton, *Histoire du syndicalisme au Canada et au Québec, 1827-1959* (Montréal: Parti pris, 1976), 29-31.
- 39 C. Vance, "Early Trade-Unionism in Quebec, 1833-1834: The Carpenters' and Joiners' Strike in Montreal," *The Marxist Quarterly*, 3 (Fall 1962): 26-42.
- 40 B.D. Palmer, *Working-Class Experience: The Rise and Reconstitution of Canadian Labour, 1800-1980* (Toronto: Butterworth & Co., 1983), 75; and Craven and Traves, "Canadian Railways as Manufacturers," 26.
- 41 Craven and Traves, "Dimension of Paternalism," 66-68.
- 42 Palmer, *Working-Class Experience*, 89-90; J. Battye, "The Nine Hour Pioneers: The Genesis of the Canadian Labour Movement," *Labour/Le Travail*, 4 (1979): 25-56.
- 43 The Noble and Holy Order of the Knights of Labor was one of the most powerful labour organizations in the United States during the nineteenth century. It was founded in 1869 by nine Philadelphia tailors and led by Uriah S. Stephens. Although a first assembly of the Knights existed in Hamilton in 1875, it was only from 1880 that this organization expanded in Canada (mainly in Quebec and Ontario). Their Canadian membership peaked around 1890 and declined afterwards.
- 44 Kealey, op. cit., 196-199.
- 45 Ibid., 326.
- 46 W. Roberts, "Toronto Metal Workers and the Second Industrial Revolution, 1889-1914," *Labour/Le Travail*, 6 (1980): 65.
- 47 Palmer, *Working-Class Experience*, 174.

CHAPTER FOUR

THE WESTERN SMITH
AS KING OF THE TRADES?



4 THE WESTERN SMITH AS KING OF THE TRADES?

Harry Baines, a retired blacksmith in High River, Alberta, told a story in the 1970s that suggests a link between the old and new worlds as well as the importance of blacksmiths in Western Canada. His account begins in medieval England with a king who, while visiting the construction of his castle, stopped to question workers about their tools. The King asked those digging the moat, “Who made your picks and shovels and keeps them sharp?” They responded, “The blacksmith over yonder.” After getting the same answer from the stonemasons and carpenters, he walked to the blacksmith, extended his hand and said, “Every man in the country is dependent on your work. As King of the Land, I want to shake hands with the King of the Trades!” An obviously nostalgic and romanticized portrait, this story is nonetheless indicative of the role smiths played in the West and the pride Western Canadian smiths had in their past.¹

Western blacksmiths’ reign over the countryside, however, was shorter than that of their eastern counterparts. Changes in the manufacturing and transportation industries quickly altered the work of blacksmiths in the West. When steam- and gasoline-powered engines replaced machines driven by water and animals, the pace of change accelerated.² In the nineteenth century, steam power was the marvel of the age. “What centuries of improvement,” wrote a specialist of the nineteenth century, “has this single agent compressed in the

short compass of 50 years! ... It seems to say ... to artisans, leave off your manual labour ... and I will bear the toil with no muscle to grow weary, no nerve to relax, no breast to feel faintness. It rows, pumps, excavates, carries, draws, lifts, hammers, spins, weaves and prints.”³

The impact of steam power was particularly evident during the latter part of the nineteenth century, when thousands of European immigrants travelled across the Atlantic and overland on steamboats and locomotives to settle in towns and farms across the Prairies. In the past, ox carts and horse-drawn wagons were used to transport people and haul goods, which, in turn, provided employment for blacksmiths who built and repaired these vehicles. Prior to the arrival of steam- and gasoline-powered transportation, carts were the primary means of travel over the rough prairie grasslands. In the 1860s, some 600 carts made the 885 kilometre return trip twice yearly between Fort Garry (north of Winnipeg), Manitoba, and St. Paul, Minnesota. Thousands of pack horses involved in gold rushes in British Columbia and the Yukon also had to be cared for and shod. Work on these animals and vehicles was a boon to the blacksmith’s trade (fig. 4.1 & 4.2).

When steam trains arrived, carts were no longer needed for long-haul transportation. Furthermore, by bringing large amounts of hardware and manufactured goods to towns,



Figure 4.1: A prairie wagon train east of Milk River, Northwest Territories, c.1872 (Manitoba Archives, N-11931)



Figure 4.2: Métis traders with their families and the type of carts they used prior to the arrival of the railway, Manitoba, c.1872 (Manitoba Archives, N-11932)



Figure 4.3: Makeshift shop of A. Lyons, Travers, Alberta, c.1910 [Glenbow Museum, NA-1308-33]

the “iron horse” undermined the production of some items produced in the ironworker’s shops. Although the railroad brought blacksmiths to western provinces, it ultimately contributed to the demise of their trade. The arrival of steam- and gasoline-powered machinery, including “horseless carriages” (railways) and “stink wagons” (automobiles), decreased farmers’ dependence on blacksmiths more quickly than elsewhere in the country. Since the settlement of parts of the West occurred around the same time as the introduction of new machinery, western farmers appeared to embrace these new developments as quickly as their counterparts in the east, many of whom continued to use traditional methods and technology.⁴

Some western blacksmiths who had no formal training opened their shops using portable forges and tools they had ordered from a diversity of catalogues produced by stores like Eaton’s and Woodward’s and companies like McLennan, McFeely and Prion Ltd.⁵ As the number of skills required to do the work of a blacksmith diminished, less time and equipment were required to learn the trade. Since these informally trained practitioners did not have the commitment to the trade that their predecessors did, they were quicker to leave their forges to embark on new careers.

4.1 IMMIGRANT SMITHS

In the late 1800s and early 1900s, many blacksmiths left from Great Britain and Europe on ships bound for Halifax, Saint John, Quebec and Montreal. Although some settled in Eastern and Central Canada, several were destined to travel overland on trains to Manitoba, Saskatchewan, Alberta and the Midwestern American states (fig. 4.3).⁶ A few ventured on to British Columbia, Washington, Oregon and California. Since First Nations peoples did not have knowledge of ironworking at the time, European blacksmiths generally enjoyed a monopoly over a trade that was critical to the conquest and colonization of North America. Although residential schools for First Nations students offered courses in blacksmithing, it is not known if any took up the trade.⁷

Many immigrants came from Britain while others hailed from European countries such as Poland, Ukraine and Russia. They came with a diversity of languages, customs and religions; Jews fleeing pogroms, Hutterites, Mennonites and Doukhobors escaping ethnic tensions and military conscription travelled to the Canadian Prairies and British Columbia in search of security, peace and prosperity.⁸ In one case, two Russian blacksmiths and their wives sailed from Liverpool, England, in 1905 aboard the SS Siberian. Reinhardt (27) and Katherine Schulke (20), and Friedrich (20) and Amalia (19) Schreiner arrived in Halifax to take the train for the last leg of their journey to Manitoba.⁹

Although blacksmiths were valued members of the European immigrant communities and a substantial amount of biographical information exists about them, less is known about their daily life and work.¹⁰ An example is the Hutterites who arrived in Manitoba and South Dakota in the 1870s.¹¹ Although their leader was a blacksmith and his group was apparently known as the blacksmith people, many questions about their travels and struggles to adapt to their new home remain unanswered. How did smiths set up their shops or how did they manage to get paid for their services in the early years when money was scarce? How did spring frosts, droughts, infestations of grasshoppers, crop failures and severe winters affect the farmers and blacksmiths of the era?

Before broaching these questions in detail, consider the situation of smiths in small towns. Becky Pelenovsky talked about her memory of Wapella, Saskatchewan, where there was nothing much to look at except a Canadian Pacific Railway station, a hotel, a store, a few houses and a blacksmith shop. Although the village shop was eight miles from her farm, she remembered it because of the important role it played in the farming community. Another village some distance away experienced a more rapid growth. In 1884, two years after the railway arrived in Moosomin, the town had grown to include general stores, hotels, stables, offices for a doctor,

lawyer and printer, as well as blacksmith shops and other businesses.¹²

In many instances, blacksmiths settled down in one spot only after travelling extensively. Their trade was their passport to the world. George Donaldson is an example of a travelling Scottish blacksmith who, after learning his trade and working in Scotland, Ireland and England, moved first to South America and then to the United States before settling for a while in the Yukon. He shod large Clydesdales in Great Britain, racing horses in Virginia, pack horses in the Yukon and a variety of horses in Alberta, where he finally settled. When not shoeing horses, he made tools and horse shoes. Donaldson was thrown while riding horses and had his arm, ankle, toes and fingers broken when working on them. In spite of an active life filled with accidents, he lived to be almost one hundred.¹³

During the European settlement of the West, rapid growth and exceptional mobility gradually gave way to sedentary occupations. The security of rural work gave some craftspeople the opportunity to remain in the same shops throughout their careers. Frank Ambroz, a Polish immigrant blacksmith, spent most of his adult life in Mossbank, Saskatchewan. In 1928, he opened his shop in a simple wooden shed.¹⁴ Typical of many prairie shops, there was a large sliding door that allowed easy access for farm horses, wagons and plows to enter. The proximity of the railroad gave Ambroz the opportunity to earn part of his livelihood by making simple railroad tools and repairing equipment (fig. 4.4).

Although blacksmithing in Western Canada was not dissimilar to other rural areas, unique conditions in each region meant that even experienced immigrants had to learn new techniques. The existence, for example, of large ranches involved smiths in the creation of a wide range of branding irons for cattle, as well as of shoes for range horses. Shoeing horses also involved creating or modifying shoes to help animals work in different types of soil (fig. 4.5 & 4.6). To facilitate the dangerous work of shoeing large work horses and oxen, the animals were often immobilized in slings made of wood and leather.

Another innovation involved adapting a plow to work in the unique prairie conditions. The iron plate on a common plow used in Ontario would not slide easily over the sticky prairie soil. The first successful prairie plow was made of steel rather than iron. It was invented by American blacksmith John Deere in 1837. By the middle of the century, his company was manufacturing 10,000 plows annually, which were sold to prairie farmers in Canada and the United States.¹⁵

Two enterprising blacksmiths named Frank Van Slyke and James Flewelling were also engaged in making plows.¹⁶ After establishing a homestead near Red Deer, Alberta, in 1905, Van

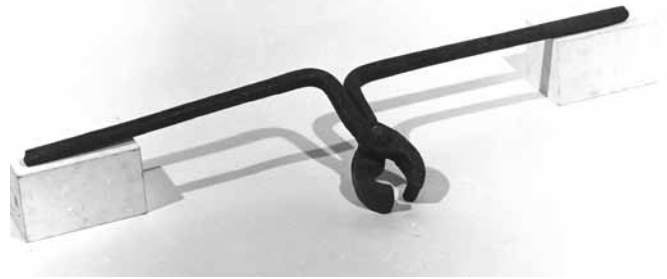


Figure 4.4: Large two-person tongs used by railroad crews to transport ties (CMC, 77-497)



Figure 4.5: Field blacksmiths in southern Alberta often shod ranch horses (Glenbow Museum, NA-1446-23)



Figure 4.6 Horseshoes with iron cleats and caulks added to prevent slipping (Photo by author, DTR)



Figure 4.7: George Evans shown with a plowshare in front of his forge, Elnora, Alberta, 1915. Note the dirt floor (Glenbow Museum, NA-2705-1)

Slyke travelled to town every week to work and live with a local blacksmith and his family. After producing a plow that could be attached to early Caterpillar tractors, he opened the Van Slyke Plow Manufacturing Company in Red Deer in 1910. James Flewwelling, who hailed from Ontario, received permission to make plows as well. After working in Manitoba and Saskatchewan as a blacksmith and salesman of farm implements, Flewwelling opened his shop in Mirror, Alberta, where he made plows similar to those made by Van Slyke (fig. 4.7).

After the fields were plowed and seeded and the crops harvested, the grain was ready to be transported to mills. Blacksmiths were involved in making and repairing the carts used to haul the grain, as well as in building and maintaining the elevators that stored the grain and the mills used to grind it into flour.

4.2 DEPRESSION AND DROUGHT

Harsh climatic conditions often led to economic distress for farmers who were not able to make enough profit from their harvest to pay their bills. Poor economic conditions affected the farmer first and the rural blacksmith next as the latter was dependent on the prosperity of the former. Drought that followed after the beginning of the Great Depression of 1929-30 resulted in difficult economic conditions and a reduction in the output of wheat. Since farmers paid blacksmiths after the sale of their harvests, they were unable to meet their engagements. Consequently, farmers avoided taking work to blacksmiths. Smiths, in turn, failed to pay wholesalers.



Figure 4.8: Discarded axe head that was repaired and broken a second time and detail of handmade tongs (Photos by author, DTR)

Called by many observers “the curse of the craft for the past 100 years,” credit became a serious problem for both farmers and smiths. Blacksmiths started denying credit to farmers, especially to those who had not paid their debts or who were dependent on a single crop, like wheat.¹⁷

Farmers responded by shoeing their own horses and repairing their own machinery. Others took up custom blacksmithing and cut prices. Editors of the *Canadian Blacksmith* journal maintained that these “tramps,” or farmer-smiths, were responsible for sloppy work and ruinous cutthroat competition. Provincial blacksmith associations that had formed in the 1920s began requesting legislation to require formal apprenticeships and to protect full-time smiths from the unfair competition of part-time farmer-smiths. Members also requested that laws be modified to allow them to apply liens on unpaid work, like those existing for mechanics.



Figure 4.9: Smith and survey team in front of a temporary structure, Manitoba, c.1872 (Manitoba Archives, N-14085)

In order to survive what was deemed the most serious situation in the history of Canadian blacksmithing, smiths were urged to adapt their skills, equipment and service so as to be able to sell, repair and maintain not only old equipment, but also new motorized farm machinery. According to a 1930 editorial by A.A. Thomson in the *Canadian Blacksmith*, the existence of over 3,000,000 horses in Canada meant that horse shoeing was still important, but it was being seriously challenged by the acquisition of a large number of machines by farmers. By 1930, western farmers had acquired 80,000 tractors, 9,800 combines, over 260,000 farm engines and 201,000 automobiles and motor trucks. Thomson advised his readers that the future of blacksmiths “hinges largely upon their ability to take care of a large share of this repair service.” Success in these circumstances, argued journal writers, meant that blacksmiths had to be not only horseshoers, but also machinists, mechanics and welders.

In some shops, blacksmiths followed a parallel strategy that involved spending more time repairing dilapidated and broken utensils and tools like axe heads (fig. 4.8). If a job required special tongs or hammers, blacksmiths were able to make them out of used tools or unused iron bar. New horseshoes were made out of old ones, and sets of double-disc harrows were made out of two old single discs. Taking advantage of the need for households to produce their own wool blankets during the Depression, a Manitoba blacksmith modified his shop to accommodate the production and repair of spinning wheels.¹⁸ Smiths described themselves as a resilient breed who used their knowledge and ingenuity to help others, while trying to survive in difficult times. Despite efforts to adapt, the glow from the fires of rural forges was gradually dying. As incomes continued to decline, more and more shops were replaced by garages and machine shops.



Figure 4.10: North West Mounted Police blacksmith shop at Fort Calgary, 1883 (Saskatchewan Archives, B-4491)

4.3 SMITHS IN SURVEY, POLICE AND MILITARY CAMPS

Itinerant smiths worked in a variety of quarters, most of which were temporary. These included camps of surveyors (fig. 4.9), railroaders and police constables. Smiths were critical members of early survey and railroad gangs that travelled across the country surveying boundary lines and laying track. When survey teams passed by farms, they occasionally engaged farmer-blacksmiths to make and repair the teams’ tools, box stoves, wagons, ambulances, yokes, chains and saddles, as well as to shoe their horses.¹⁹

When the North West Mounted Police made their 1873-74 trek west to deal with the rapid development of land, they were accompanied by blacksmiths, wheelwrights, gunsmiths, carpenters and harness makers. One of the most important pieces of equipment for the smiths and farriers was the portable forge, which was used to repair equipment and fashion horse and oxen shoes. As the group of about 300 men and their horses, wagons, carts, oxen and supplies slowly moved over the interminable grasslands, the poor trails resulted in constant repairs to the equipment and the horses’ shoes. Tormented by mosquitoes and blistering hot weather, the smiths, wheelwrights and horses were quickly initiated into the harsh working conditions of the prairies.²⁰ Like their counterparts in surveying and railroading camps, the blacksmith constables threw up temporary structures to protect them from the elements (fig. 4.10).

Similar conditions faced soldiers working as farriers and blacksmiths in army camps repairing gun carriages and wagons, and shoeing horses. The forge was mounted on



Figure 4.11: WWI soldiers training to become blacksmiths in British Columbia, c.1916 (Vancouver City Archives, 99-435)



Figure 4.12: WWI soldiers training to become blacksmiths in Ontario, 1917 (LAC, PA-1207)

wheels so it could be moved to new locations as needed. Like their eighteenth- and nineteenth-century predecessors, blacksmiths were an essential part of the country's war effort. During World War I, recruits were trained to shoe horses and repair equipment in Canadian army camps before they were sent overseas (fig. 4.11 & 4.12).

The navy hired smiths to build and repair ships in various ports in Nova Scotia and British Columbia. Skilled trades involved in shipbuilding, such as sail makers, ship carpenters and caulkers, died out in the late nineteenth century when sailing vessels were replaced by steam-powered iron ships. In the early part of the twentieth century, smiths continued the tradition of working in teams with other tradespeople, including shipwrights and painters, and, later, with electricians, machinists and welders. Smiths had to adapt their skills to work with the different types of metals and motors that were used in the construction of new vessels. By 1940, the traditional work of the marine blacksmith had been taken over by specialized trades such as mechanics, machinists, machinery repairmen, enginemen and steelworkers.²¹

4.4 LUMBER AND MINING CAMPS

By the late nineteenth century, blacksmith shops were found in mining and lumber camps throughout Western Canada. Mining companies hired smiths for well-

paid, but often seasonal, jobs. Charles O'Neill was active shoeing horses and repairing equipment for 150 miners in Barkerville, British Columbia, during the 1880s.²² Some 30 years later, the blacksmiths working at the War Eagle Mines in Rossland, British Columbia, set up a makeshift forge at the opening of a mine shaft. Such temporary forges were found in camps throughout the West and the North. When the mining operation shut down, the owners and smiths could move the equipment without having had to invest in permanent buildings.

Although familiar with the demands of the timber industry, rural smiths hired by companies had to adapt not only to the isolation of camp life, but also to the use of heavier tools and materials than those found in most villages. Lumber-camp smiths made almost all the equipment, except for saws and axe heads. They shod horses, made tools and chains, and supplied hardware for wagons, sleighs and rafts. Although large machines like steam donkeys were manufactured and maintained by boilermakers, blacksmiths were still needed to repair them. After loggers left an area, blacksmiths' equipment was moved to a new locale. Consequently, few lumber-camp smithies have survived. The traces that do exist suggest that some of the workshops were large and well organized. Photographs of a logging camp owned by the Merrill and Ring Logging Company on Vancouver Island show that the blacksmith shops were outfitted with the latest equipment.

Blacksmiths were also involved in setting up and maintaining the equipment in sawmills that cut timber into



Figure 4.13: Ambulance and milk wagon made and repaired by Thomas Lobb, standing in front of his blacksmith shop, Vancouver, c.1897 (Vancouver City Archives, P-181)

lumber used in the construction of buildings and houses. In New Westminster, British Columbia, for example, smiths and their helpers worked in the mills along with other skilled workers. In 1887, the city of 4,000 inhabitants was not only a major outfitting centre for prospectors, but also an industrial centre that employed smiths, their apprentices and helpers, gunsmiths, ironmongers, foundry moulders, boilermakers, and machinists and machine hands. The need for a diversified workforce of both skilled and unskilled ironworkers was indicative of the increased employment opportunities available in urban centres.²³

4.5 URBAN SMITHS

Burgeoning urban centres not only provided the immigrant smith with employment, they also offered many smiths the possibility of changing occupations and locations. Whereas some urban smiths continued to make and repair a variety of implements and vehicles, such as ambulances and milk wagons, others left their shops to take up farming, milling, lumbering, and running liverys and hotels (fig. 4.13). Still others transformed their practices into related jobs as mechanics and machinists, as well as owners of motor repair shops, garages, car and tractor dealerships, and agricultural equipment enterprises. J. W. Millar, for example, changed careers completely. From his blacksmith shop, Millar expanded into sawmilling and construction, and finally ended up owning a chemical processing plant, known as the Millar Western Company.

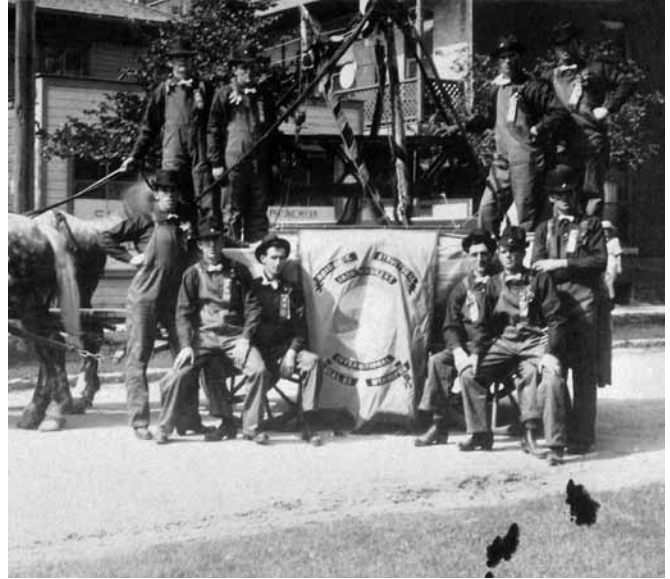


Figure 4.14: Ironworkers' Labour Day parade float, Winnipeg, 1911 (Manitoba Archives, Ironworkers Collection, Negative 10977)

An Irishman, William Wilson, is an ideal example of an itinerant smith. Wilson's family immigrated to New York in 1863 before moving to Montreal and, then, to Gatineau, Quebec. At the age of 14, young William began his apprenticeship and worked as a journeyman until 1879 when he left for Manitoba. He worked for two years at the Keewatin Milling Company before settling in Brandon, Manitoba, where he opened his own blacksmith shop. While William was supporting his family financially, his wife, Mary Ann McCann, followed him with their eight children in tow.²⁴

A sense of professionalism and public initiative provided enterprising blacksmiths with possibilities for social, political and economic leadership. Like some of their counterparts in Ontario and Quebec, western smiths employed with large construction projects, such as railways, struggled for better working conditions. Since health insurance was not introduced until the latter twentieth century, workers had little protection when sickness or accidents occurred. Blacksmiths suffered from many common ailments, such as typhus and pneumonia, and injuries from horse bites and kicks, as well as from repairing machinery and lifting heavy objects. Smoke inhalation, extreme heat exhaustion and deafness were also common health problems.²⁵

Welshman Thomas Flye was a blacksmith who became an active labour leader.²⁶ Arriving in Canada in 1910, Flye worked for the Dominion Bridge and the Canadian Pacific Railway companies. After joining the Independent Labour

Party, he became a member of the Central Strike Committee in the Winnipeg General Strike of 1919 and a member of the Winnipeg City Council in 1921 (fig. 4.14).

Smiths also served as local politicians. Whereas George Pringle Sanderson was an enterprising smith and municipal leader in Alberta, A.E. Friend was Perdue's first blacksmith and mayor. Born in Ontario, Sanderson journeyed west and combined work in his shop with public and political activities. Travelling by ox cart and buckboard, he worked as a smith in Winnipeg, Manitoba, in 1877, then in Prince Albert, Saskatchewan, and, finally, in Edmonton, Alberta, in 1881, where he set up shop as a blacksmith and locksmith. After becoming the City's first fire chief in 1892, Sanderson made a number of forays into municipal politics, serving as an alderman twice.²⁷ A.E. Friend, on the other hand, never moved from Perdue, Saskatchewan, where he settled in 1910 and served as mayor from 1918 to 1946. During this period, he was also president of a Blacksmiths' Association, active in treating the sick during the flu of 1919, wrote relief orders for people during the depression, hired teachers and helped establish a local medical scheme.²⁸

David Latta represented another enterprising blacksmith. Latta, an Irish immigrant, became a blacksmith and a successful businessman, and dabbled in local politics. Arriving in Ontario in the late nineteenth century, he travelled through Saskatchewan and settled in Edmonton. Having gained experience as a carriage maker, Latta opened a blacksmith and carriage shop and later served as a city councillor. After John Lyons joined him in business, the Latta and Lyons Company gradually replaced their active blacksmithing tasks with more modern ones, for example, dealing, in blacksmith supplies, racehorses, motors and automobiles.²⁹

4.6 HORSELESS CARRIAGES, STINK WAGONS AND THEIR MECHANICS

When the gasoline motor replaced the horse-drawn carriage, new vehicles called "horseless carriages" were gradually transformed into cars and trucks. Once cars became mass produced and sold at a price people could afford, and new roads were opened and paved, horses and buggies no longer had a monopoly on transporting people and goods. The introduction of vehicles powered by steam and gasoline had a direct impact on the traditional blacksmith trade: this signaled the beginning of the end of the blacksmith's hold on the countryside. Like many other crafts, smiths had to adapt to changing times and take up the challenge of working on automobiles, trucks and tractors (fig. 4.15). They also retooled their skills by becoming mechanics, machinists,

salesmen and inventors who turned to manufacturing new types of vehicles. Even before the Great Depression began in 1929 and the droughts arrived in the early 1930s, western blacksmiths were experiencing a business crisis brought on by the introduction of agricultural power units, air-filled rubber tires and automobiles. Changes occurring in the country's primary blacksmith journal are indicative of those affecting the craft in general. After urging their readers in 1927 to become automobile repairers and welders, the editors of the *Canadian Blacksmith & Woodworker* changed the name of their journal to the *Canadian Blacksmith, Gas Welder & Repairman*; by the 1940s they had altered the title to include *Automotive Repairman* and added the subtitle: *A Journal for Mechanics*.

Clearly, the arrival of gas-powered vehicles resulted in an unprecedented and inevitable transition in the lives of blacksmiths. Some benefited more than others. As inventive smiths were adept at tinkering with machinery, they explored the possibility of attaching gasoline motors to carriages. For example, in Hartney, Manitoba, an immigrant blacksmith from Alsace-Lorraine, France, named Edmund Isabey successfully harnessed an engine to a buggy.³⁰

The changes in Isabey's career illustrate the impact the gasoline engine had on blacksmiths. His shop was transformed into a garage where he and his sons repaired automobiles. One son became a mechanic and worked with his father, another opened his own garage with an attached service station and car dealership, and the third son opened a General Motors dealership in the town of Sioux Lookout, Ontario. Before his death in 1935, Edmund and his son Narcisse started a Ford dealership at their Hartney Machine and Motors garage. Ever tinkering and inventing, the two built the town's first fire engine in 1917, and Narcisse took on the job of the town's volunteer fire chief. Their success was not necessarily shared by other smiths, but it was repeated often enough to suggest that, although the introduction of the automobile undermined the careers of some, it facilitated and enhanced those of others (fig. 4.16).

Articles in early-twentieth-century newspapers downplayed the impact automobiles would have on the lives of citizens and commerce. Journalists assured their readers they need not be alarmed about the damage the motor car might have on their businesses. They described cars as "stink wagons" driven by life-endangering pleasure "jaunters" out on joyrides. Journalists argued that the "devil wagons" often got stuck in the mud, were difficult to drive and maintain, and were limited to a maximum speed of twelve kilometres per hour. For these reasons, wrote journalists, the automobile would never replace the horse and buggy. Legislators appeared to agree, as laws were passed restricting the number of cars that could be driven during the week and the types of roads they could use during market days.

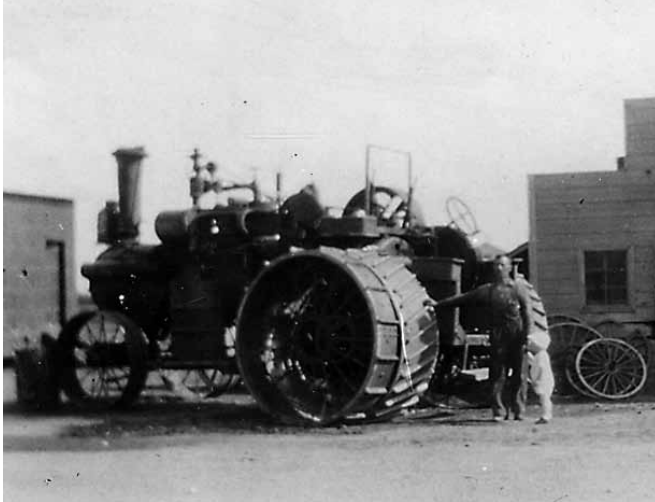


Figure 4.15: Blacksmiths like John Weisbeck were among the first mechanics to deal with steam and gas tractors (Saskatchewan Archives, R-A20188)

During the 1920s, provincial representatives changed their minds and spent thousands of dollars constructing and paving roads. Now the “common enemy” invaded the city. As cars and trucks dominated country roads, church horse-sheds disappeared. And, as farmers gradually adopted steam- and gas-powered vehicles as their preferred mode of production and transportation, they represented the biggest threat to the future of the traditional blacksmith’s trade. Writing in 1927, the editor of the *Canadian Blacksmith* maintained that horse haulage would always be the most economical urban mode of transportation. By the 1940s, however, bakeries and dairies were among the few urban businesses that still considered horse haulage a profitable means of transportation.



Figure 4.16: Blacksmiths and clients in front of the world’s new icon, the automobile, Standard, Alberta, 1923 (Glenbow Museum, NA-3969-19)

By 1950, blacksmith shops had all but been replaced by automobile garages throughout the continent. The exterior of some garages resembled traditional blacksmith shops, but the interiors of most were transformed by the addition of oxyacetylene blowtorches, hydraulic lifts, mechanic pits and specialized machinery. Although the traditional blacksmith shop had almost disappeared, the craft has nonetheless evolved into many specialized trades involving metal products and parts used in manufacturing goods that continue to serve the modern world.

NOTES

- 1 Barbara Kwasny, “King of the Trades,” *Alberta Heritage* (1975): 18-20, 43
- 2 John H. Warkentin, “Western Canada in 1886,” *MHS Transactions*, Series 3 (1963-64) (www.mhs.mb.ca/docs/transactions).
- 3 W.H. Doolittle, *Inventions in the 19th Century* (London: Linscott, 1902), 91.
- 4 Changes to blacksmithing in the Western provinces are documented in and discussed in more detail later in this chapter.
- 5 “Portable forge for farmers,” in *Woodward’s Catalogue* (Spring & Summer 1915): 21; portable forge models in the *McLennan, McFeely & Prior Catalogue* (1946): 31; and an advertisement concerning a booklet on blacksmith tools, forges and veterinary equipment in *Eaton’s Catalogue* (Spring/Summer 1918): 480 [these catalogues can be found at the Vancouver City Archives]. John Pott is an example of labourer who “fell into becoming a blacksmith” at a railroad tie camp c.1930 where he met an English smith who taught him the trade. See: Saskatchewan Archives Board, interview of John Pott, 1976.
- 6 A. E. Friend is an example of an immigrant blacksmith. After an apprenticeship in Kent, England, he left for Toronto in 1907 and three years later took a harvest excursion train to Perdue, Saskatchewan, where he set up his shop and later his house. A transcript of his 1971 interview can be found at the Saskatchewan Archives Board.
- 7 M. Sanderson, “Reminiscences of St. Paul’s Industrial School” *Manitoba Pageant*, 4.1 (September 1958) (www.mhs.mb.ca/info/pubs/pageant.shtml).

- 8 Arthur A. Chiel, "Manitoba Jewish History: Early Times," *MHS Transactions*, Series 3 (1953-54) (www.mhs.mb.ca/docs/transactions); Sharon H.H. Brown, "Reimer, Klaas R. (1837-1906)," *Global Anabaptist Mennonite Encyclopedia* (www.gameo.org/encyclopedia); T.A. Crerar, "Silver Creek District in the Early Days," *MHS Transactions*, Series 3 (1955-56) (www.mhs.mb.ca/docs/transactions); George Woodcock and Ivan Avakumovic, *The Doukhobors* (Toronto: McClelland & Stewart, 1977), 1-242.
- 9 "Passenger lists of ships arriving in Halifax, Nova Scotia," www.progenealogists.com/palproject/ns/
- 10 The pioneering biographical work of G. Bryce and John M. Bumstead has been completed by a significant number of articles concerning blacksmiths. When these findings are combined with information from newspapers and census returns, it is possible to paint a picture of the importance of smiths in western development. G. Bryce, *History of Manitoba: its Resources and People* (Toronto: Canadian History Co., 1906) (www.mhs.mb.ca); J. M. Bumstead, *Dictionary of Manitoba Biography* (Winnipeg: University of Manitoba Press, 1999) (www.mhs.ca/docs/people); *Pioneers and Early Citizens of Manitoba*, 1971 (www.mhs.mb.ca/docs/transactions); *Saskatchewan Herald*, 1878-1885; *Census of Canada*, 1911; *Pioneers and Prominent People of Manitoba* (www.mhs.mb.ca/docs/transactions); "Pioneers," *Encyclopedia of Saskatchewan* (<http://esask.uregina.ca/entry/pioneers.html>).
- 11 Victor Peters, "The Hutterites: History and Communal Organization of a Rural Group in Manitoba," *MHS Transactions*, Series 3 (1960-61) www.mhs.mb.ca/docs/transactions.
- 12 Chiel, "Manitoba Jewish History," "Mennonites," "Moosomin" and "Rural Settlements," in the *Encyclopedia of Saskatchewan* (<http://esask.uregina.ca/>).
- 13 Kwasny, "King of the Trades," 19-20. For the story of a mobile blacksmith within Western Canada, see: Saskatchewan Archives Board, interview of John Pott, 1976, as well as the short biographies of smiths in Bryce, op. cit.
- 14 Web site: www.heritagecanada.org/eng
- 15 William L. Morton, "The Walking Plough," *Manitoba Pageant* (1957) (www.mhs.mb.ca/info/pubs/pageant.shtml).
- 16 "Frank Van Slyke (1863-1936)," (www.abheritage.ca/abinvents) and "James Francis Flewwelling," (www.abheritage.ca/abinvents/).
- 17 This section is based on the *Canadian Blacksmith* (1928-1944). References are given in the text.
- 18 Marijan Salopek, ed., *Struggling to Survive: Economic and Social Conditions in the Canadian West during the Depression* [extract] (<http://victoria.tc.ca/history/etext/depression.conditions.prairies>).
- 19 Capt. A.C. Ward, *The Boundary Commission Notes and Accounts and Farming Accounts Approximately 1873-1882*, copied by Ruth M. Breckman and Jean L. Hewko, December 5, 1999, 98-99 [this transcription can be found at the Manitoba Provincial Archives].
- 20 J.P. Turner, "The Historic 49th," *RCMP Quarterly* (October 1941): 166-177 and *The North West Mounted Police, 1873-1893* (Ottawa: King's Printer, 1950), vol.1, 98-557.
- 21 Few biographies of twentieth-century marine blacksmiths exist. James Chidlow is an example of a smith who served as a blacksmith on the HMCS *Provider* from 1940-1945 (www.victoriatimescolonist/news/story.htm).
- 22 *British Columbia Directory* (1887) (www.ourroots.ca/).
- 23 Ibid.
- 24 Bryce, loc. cit.
- 25 "Patients in B.C. Hospital," (www.rootsweb.com-bc/bchospitals.htm).
- 26 *Western Municipal News* (December 1943): 305, cited in Bumstead, loc.cit.
- 27 "G. Sanderson (Canadian politician)," *Wikipedia* (<http://en.wikipedia.org/wiki/>).
- 28 Saskatchewan Archives Board, Interview of A.E.Friend.
- 29 "David Latta (Alberta Politician)," *Wikipedia* (<http://en.wikipedia.org/wiki/>).
- 30 Judith H. Beattie, "Hartney Machine and Motor Ltd.," *MHS, Centennial Businesses* (www.mhs.mb.ca/info/pubs/mb_history).

CHAPTER FIVE

SYMBOLIC
REPRESENTATIONS AND
CULTURAL PRACTICES



5 SYMBOLIC REPRESENTATIONS AND CULTURAL PRACTICES

*Thanks, thanks to thee, my worthy friend,
For the lesson thou hast taught!
Thus at the flaming forge of life
Our fortunes must be wrought,
Thus on its sounding anvils shaped
Each burning deed and thought.*

H. W. Longfellow

Longfellow, a famous American poet of the nineteenth century, wrote these lines in his mythical story, *Evangeline: A Tale of Acadie*, which includes the British expulsion of an Acadian blacksmith and his family in 1755. It is only one of many stories involving imaginary or supernatural smiths, some of which originate thousands of years ago.

5.1 LEGENDS AND MYTHS

Legends about blacksmiths as mythical heroes and patron saints who perform miracles represent archetypes that embody the collective hopes and fears of humanity. These legends also signal the need through the ages for powerful models capable of influencing behaviour. One of the first mythological figures related directly to metalworking was Hephaestus, the Greek

god of the forge and patron of artisans (fig. 5.1 & 5.2). Initially, he occupied a place alongside the gods of life and death, for whom he created the first woman from a lump of clay. But when events took a turn for the worse, Hephaestus was thrown out of Olympus and landed on the island of Lemnos, where he was condemned to make metal armour for mortals. According to a version of this myth, Hephaestus created the famous armour of Achilles and the chains that bound Prometheus after he had stolen the secret of fire from the gods. He also made Talos, an iron watchman, to protect Minos, the King of Crete. Injured from his fall from Olympus, Hephaestus recovered but remained lame, a distinctive feature that is repeated in legends about blacksmiths. Since blacksmiths were often kicked in the leg by horses, parts of these legends reflect real-life experience.¹



Figure 5.1: Greek shrine representing the gods Hephaestus and Aphrodite, or the marriage of craft and beauty, Athens, 2008 (Photo by author, DTR)



Figure 5.2: Hephaestus, the Greek god of the forge (<http://karenswhimsy.com/greek-gods-goddesses.shtml>)



Figure 5.3: Saint Dunstan and the devil
(http://wilsonsalmanac.com/FIGURES1/dunstan6_sm.gif)

Hephaestus' Roman counterpart was Vulcan, the god of smithing and fire. According to one version of the myth, Vulcan also became lame when his father, Jupiter, cast him out of heaven. Vulcan is believed to have made arms and armour for gods and heroes, as well as thunderbolts at his forge on Mount Etna, Sicily. He was married to Venus, the goddess of love and beauty, who was often represented in ancient art with her son, Cupid. Vulcan was the patron of armourers and metal workers.² During the nineteenth century, the word "Vulcan" was used to identify a large Montreal forge³ and "vulcanization" described the process of curing rubber at high temperatures.

Wayland, the hero-smith of Norse tradition, was the product of another imaginary story. Captured by the King of Sweden and imprisoned on an island, Wayland was compelled to forge weapons for the King's army. Before escaping, Wayland assassinated the King's son and gave the King a drinking vessel fashioned from the boy's skull. This illustrates a conflicting figure of the blacksmith as both creative artist and barbarian.⁴

In a version of the Anglo-Saxon legend of Saint Dunstan, the famous smith and bishop was tempted by the devil, who was disguised as a beautiful maiden. Unmasking his visitor, the Saint seized him by the nose with red-hot tongs. The roars of Satan were so strong that they split the cave housing the forge into three pieces. Another version of the story states that Saint Dunstan agreed to release the devil on the condition that he never enter any place where a horseshoe was nailed above the door. The persistence of this story may explain why horseshoes are considered to be lucky charms or a means to avert spells (fig. 5.3 & 5.4).⁵

In England, Saint Dunstan was eventually replaced as patron saint of blacksmiths by the French smith and bishop, Saint Eligius, who performed miracles during the reign of the



Figure 5.4 Originally built in the nineteenth century, the Church of Saint Dunstan in Charlottetown, Prince Edward Island, is evidence of the widespread influence of legends about this tenth-century Catholic blacksmith-saint, 2009 (Photo by author, DTR)

French King Dagobert (629-639 CE). In this legend, Saint Eligius became famous when he cut off the legs of a horse possessed by the devil, shoed them, made the sign of the cross and welded the four truncated legs back onto the body of the horse, all to the astonishment of onlookers (fig. 5.5).⁶

By the end of the medieval era, moral tales about blacksmiths dealing with evil were a recurring theme. One originating in Welsh folklore relates the story of a blacksmith who, having found himself in dire straits, agreed to sell his soul to the devil in exchange for a sack of gold. Having eventually sheltered an elderly destitute woman, the smith was rewarded by his protégé with three magical objects: a hammer, a chair and a pocket. Each time the devil came to claim his due, he was trapped by one of the smith's three items. On his last visit, the devil was imprisoned in the pocket and badly beaten on the smith's anvil. Finally, the blacksmith released the devil on the condition that he never bother the smith again. When the smith died and knocked at the gates of hell, Satan was so frightened that he lit a fire so that God could see the smith and usher him into heaven. The moral of the story is that, if people do good deeds and live in accordance with religious principles, they shall receive a just reward.⁷



Figure 5.5: Saint Eligius, patron of French smiths (http://FIGURE12.webshots.com/12/6/37/14/25286371400872714611Lacqw_fs.jpg)

Many legends depict blacksmiths as itinerant workers or nomads who were despised by the local population, apparently, because of their deviant behaviour. The origin of this misrepresentation is related to the fact that, around 400 BCE, lower-caste Indian blacksmiths were obliged to move westward, where some of them were said to have engaged in criminal activities in order to survive. Another explanation is found in the belief that the three nails required for the crucifixion of Jesus Christ were said to have been forged by a itinerant smith who lived outside the gates of Jerusalem. Always on the move, nomadic blacksmiths were victims of persecution and discrimination, in part because of stereotypes and stories concerning their alleged misdemeanours and lifestyle. Basing his judgment on such stories, Philip III, King of Spain, ordered itinerant smiths in 1619 to settle in cities and forbade them from working as blacksmiths under pain of death.⁸

Since travelling smiths were described as immoral and adept in the art of black magic, not to mention unscrupulous in business affairs, guilds in France and Germany implemented rules as early as the sixteenth century to govern their behaviour. One rule dictated that, during a three-year pilgrimage devoted to perfecting their skills, journeymen smiths must deliver a “wander book” to the guild master in any city where the journeymen stopped. The log book included the journeyman’s birth certificate, apprenticeship papers and letters of recommendation from former employers. The local guild retained the book until the journeyman’s departure.⁹

These stories raise a number of questions. Were, for example, the itinerant smiths mentioned above a threat to their local counterparts? Who were the authors of these stereotypes and prejudices against migrant workers? How and why were these stories transmitted from generation to generation, up until

modern times? Who benefited from these negative portraits of blacksmiths? These are questions that should be remembered when reading these stories. Such queries undoubtedly provide a larger perspective for studying social and cultural practices during the pre-industrial era.

Other more positive stories served as metaphors for enhancing the heritage and skill of artisans in a new colony, where much had to be built. This is true of many Canadian legends that were imported from Western Europe or Great Britain and adapted to a North American context. A good example is a story that explains why blacksmiths were given the title of the “father of all craftsmen.” According to this legend, a New France landowner, who wished to build a manor house, called the most skilled representatives of each trade and announced that whoever did the best work would be given the coveted title. Since all of them—the carpenter, the mason, the sculptor, the smith and others—did their best, the choice was difficult to make. In the end, the owner decided that his tailor should win because, although he did not work on the construction of the manor, he decorated it with beautiful draperies. Disappointed, the blacksmith disappeared into the forest. Soon the villagers realized that no one could make new tools for the mason, mend the broken hinges of the manor gates or sharpen the tailor’s scissors. To resolve the dilemma, a banquet was organized and the landowner announced that the blacksmith was to receive the honorary title instead of the tailor. The tailor was so angry that he cut up the blacksmith’s apron with his scissors. This is said to be why there is a fringe at the bottom of smiths’ aprons.¹⁰

During the nineteenth century, legends borrowed from Scottish folklore were popular among the inhabitants of Scottish origin in Lanark County, Ontario. One tale tells about a blacksmith being punished because he did not respect the Sabbath by working seven days a week. Returning from church one Sunday morning, the villagers, who were shocked by this sacrilegious behaviour, discovered to their surprise that the smith and his shop had been burnt to the ground, and the site transformed into a bog. Many years later, the smith’s anvil was found in the bog. The legend concludes that, from that time on, the anvil was put on display to remind everyone of the dire consequences of not respecting the Sabbath and church doctrine.¹¹

A similar concern with religious observance is found in stories about the Forges du Saint-Maurice in Quebec. Authors writing during the late nineteenth and early twentieth centuries recorded several versions of legends concerning the appearance of the devil. According to these writers, the devil appeared when parishioners failed to respect the church’s teachings. Authors like Benjamin Sulte and the Abbé Napoléon Caron suggested that God permitted such appearances to scare villagers and to remind them of their religious duties (fig. 5.6).¹²

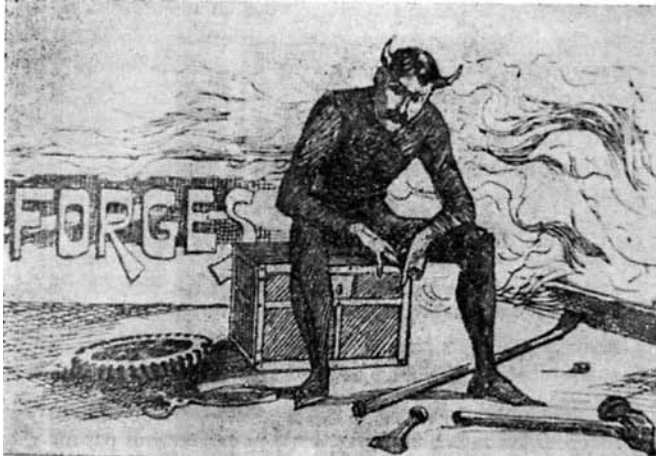


Figure 5.6: The devil at the Forges du Saint-Maurice (B. Sulte et al., *Contes et légendes des vieilles Forges*, Trois-Rivières, Éditions du Bien Public, 1954, p.18)

Another type of Canadian legend emphasizes the blacksmith's brute strength. The idea behind these tales was likely to insure deference towards the person who was often called upon to act as a jailer or as conciliator during conflicts between citizens. Until recently, a tale circulated in the Ottawa Valley about a strange encounter between a local blacksmith and the lumberjack Joe Montferrand, who was renowned for his amazing strength. When a swaggering Montferrand ordered the blacksmith to light his pipe with a hot branding iron, the blacksmith responded by picking up his red hot anvil and passing it to Montferrand, much to his surprise as the anvil was hot and heavy. On another occasion, Montferrand asked the blacksmith for directions to a neighbour's house. Demonstrating his strength once again, the blacksmith held up a plough with one hand and pointed it in the right direction, to the astonishment of all concerned.¹³

In the Beauce region of Quebec, a similar story survives about a French Canadian blacksmith nicknamed "coq à Pomerleau" (proud Pomerleau), who opened his shop in a newly colonized area close to an Irish community. When a group of Irish settlers came to intimidate him, the smith showed his great strength by fighting them off one by one, all the while being cheered on by his fellow countrymen.¹⁴

Popular legends about blacksmiths suggest that many were such workaholics that they appeared to be more married to their anvils than their wives. That is why village gossipers spun stories about the smith's virility and intelligence. One story concerns a hardworking jealous blacksmith who imprisoned his beautiful wife in his house and did not allow anybody to visit her. When she fell ill, the blacksmith had no choice but to ask an elderly woman healer to come to her bedside. A travelling salesman who saw the beautiful wife offered the healer a reward to hide him in her medicine

trunk. She agreed, and the strong smith easily carried the load into his wife's bedroom, where the young salesman had his way with the neglected wife. Upon returning the trunk to the older woman's home, the blacksmith was stopped by a neighbour, who invited him to come to his house to play music for his wife. During a fight that occurred between the two neighbours, the medicine trunk broke into pieces and the young salesman escaped. The moral of this story is do not neglect your wife because "all work and no play make Jack a dull boy."¹⁵

5.2 MUSIC AND SONGS

According to the poem "To a Child" by Henry Wadsworth Longfellow, the seven-chorded lyre was invented after the Greek philosopher Pythagoras heard the melodic notes of hammers striking anvils and reverberating through the smith's tongs. Similarly, the organ, introduced in Europe around 750 CE, may have been partly inspired by the smith's bellows.¹⁶ The relationship between the art of metalworking and musical instruments is not surprising since traditional Scottish, Hungarian and Serbian blacksmiths were often good fiddlers. A kind of melody coming from the blacksmith shop may have been what George Frederick Handel had in mind when he composed his famous sonata, "The Harmonious Blacksmith," three centuries ago.¹⁷

In Canadian oral tradition, folk songs are among the best preserved treasures. One of the recurring themes is the relationship between smiths and women. Often the lyrics tell how men were repelled and ridiculed by the women they desire. A French-Canadian song based on a Norman folk tale recounts, for instance, how a young maiden hesitated to marry a handsome young blacksmith because his hands were always dirty and because he walked with a limp. She declared that she much preferred men of other trades. In another version of the song, the young woman was reluctant to marry a blacksmith because, since he worked night and day, he would not be able to satisfy the needs of a faithful wife.¹⁸

Sometimes the rhythm of pounding hammers on anvils was equated with sexual pleasures, as in songs such as "Le marteau de l'ouvrier" (the workman's hammer), a ditty from the Beauce region of Quebec. Here, the smith was told that he could beat the red-hot metal harder with his hammer, as long as he did so with love. And when the anvil moaned, he would know that the blows were well placed and the hammer sufficiently wet for the job. Inversely, the tools of the blacksmith could be used to express other sentiments. For example, the "Beau maréchal" (the handsome smith), a tavern song that was likely based on a French legend, told the story of a desperate husband who asked a local blacksmith to horseshoe his wife in order to get rid of her jealousy and stubbornness.¹⁹ Songs about women who desire virile smiths with unbound masculine energy were



Figure 5.7: Posters on the wall of a smith's shop, including a sign to combat blasphemy (BANQ, E6, S8, SS2, DC78-166, P.32A-35)

likely in keeping with male fantasies. Such songs often act as metaphors to justify male sexual and social attitudes.

What these songs otherwise reveal about collective assumptions is difficult to explain. To do so, it is important to get beyond the entertaining aspects of myths and popular songs, and to explore their hidden meanings and what they signify within different historical contexts. Do they represent unconscious ways of transgressing taboos, or individual strategies aimed at exorcising collective fears about sexuality? In each case, these songs should be viewed as powerful markers capable of illustrating collective aspirations as well as conflicting values. While it is not our mandate to explore this topic, those interested in doing so should first build links between the songs' content and the social systems within which they were rooted.

5.3 ATTITUDES AND RITUALS

When dealing with the past, there are many ways to tackle the question of cultural practices among people belonging to the same social milieu.. One is to focus on common sayings and language. Among colloquial phrases originating from the blacksmith's craft, several were meant to reinforce attitudes, such as the dictum: "It is while working the forge that one becomes a good blacksmith," or "the art of tempering metal is strongly connected to the soul of a blacksmith." Some adages praised the smith's independence, such as "a blacksmith hates to walk in the shadow of someone else because he is the master of his own destiny" or "a good blacksmith always keeps the secrets of his trade hidden."²⁰ Although it is difficult to identify the persistence of such dictums, obvious links exist between

them and those used in occupations today that emphasize the importance of experience, independence and secrecy.

Though revealing, the body language used in noisy shops has, until recently, been understated. We know from personal testimonies that the blacksmith used different signals and gestures to communicate with fellow workers. When, for example, the smith hit the anvil three times with the hammer, this signaled to an assistant to pull the hot iron out of the fire. When the time came to cool the iron, the smith spit in a barrel of saline solution, which indicated it was time to drop the piece of metal into the brine.²¹

Besides the habit of swearing (fig. 5.7), blacksmiths were renowned for their heavy drinking. The harshness of their trade, plus the hot and dusty conditions of their shops, likely contributed to a thirst for strong liquid refreshments. An examination of the account books of Canadian blacksmiths reveals that they were often paid in Jamaican rum or French wine. Several stories mention how, during the eighteenth century, the smiths of Forges du Saint-Maurice turned Saint Eligius celebrations into drunken orgies, sometimes with the help of extensive quantities of liquor. Such alcoholic binges led Bishop Briand in 1780 to abolish the St. Eligius festivities and other celebrations in the Province of Quebec.²² Despite the efforts of temperance societies, excessive drinking continued to be the norm among craftspeople and, especially, among metalworkers throughout the nineteenth century.

As important personalities in villages or urban centres, blacksmiths were given a prominent place in popular demonstrations like the Saint-Jean-Baptiste celebration in Quebec or the Protestant Orangemen parades in Ontario. During such events, these craftsmen usually travelled on a horse-drawn vehicle decorated to resemble a forge. As they passed by, they entertained the crowds with their wild theatrical antics, delighting adults but often frightening children.²³ On Easter eve, the churchwardens also called upon the blacksmith to light the "spring fire," an ancient Christian ritual. The fire was lit by striking flint against an iron blade to produce sparks that ignited a cauldron full of flammable material and twigs. Once the flames began to subside, the smith transported the cauldron to the church, where the christening of the fire revival ceremony took place. Such practices were apparently still celebrated in some regions of Quebec during World War II.²⁴

Other rituals, like the "firing of the anvil," survived in Ontario and the Maritime provinces. The firing of the anvil originated in England's Sussex County as early as 1588, when the Spanish Armada was threatening to invade coastal areas. To alert the population of the imminent invasion, blacksmiths ignited gunpowder on their anvils, and the resulting loud booms sent a signal to neighbouring villages. In the end, the British Navy, under Sir Francis Drake, defeated the "invincible Spanish Armada." This ritual then became part of a victory



Figure 5.8: Men outside of a blacksmith shop, near Ottawa, c.1900 (LAC, PA-13222)

celebration in England and later in Canada, especially at the end of the Boer War and World War I.²⁵

In traditional society, the forge was a social gathering spot, where villagers came to exchange news, make deals, barter for goods and discuss politics (fig. 5.8). Apparently such customs first appeared in ancient Greece, where citizens stood around the blacksmith's fire to discuss current affairs. A similar scene was described in James Barke's novel *The Wind that Shakes the Barley*, in which the famous eighteenth-century Scottish poet Robert Burns chatted with his friends near the open door of a blacksmith shop.²⁶

In Canada, when work slowed down the blacksmith created a unique sound by striking alternately the anvil and an iron bar with his hammer to signal that the shop was taking a break and people could gather around the hearth for discussion with the workers. Throughout the day, as many as 10 or 15 people could be seen lingering around the shop, gossiping and discussing a whole range of topics, such as wedding rumours, the lax morals of youth, crops, weather, land transactions, epidemics, accidents, school board elections, township assemblies and petitions. Disputes were occasionally settled concerning fences, unpaid debts and family squabbles. Villagers also played cards, dice and checkers, as well as competed in games of strength such as the sledgehammer throw. Contributing to this social interaction was the cooperative vocation of some blacksmiths shops. In parts of Nova Scotia and Quebec, it was not rare to see blacksmiths acting as custodians of community-owned agricultural and construction implements, such as plows, lime spreaders and jacks used for raising buildings.²⁷

In some cultures, metal products "created out of fire" by blacksmiths were viewed as having both negative and



Figure 5.9: Painting of Piero di Cosimo representing Vulcan, the god of fire, working at the anvil, c.1490 (National Gallery of Canada, Ottawa, Ont., photo ©)

positive magical powers. The belief that some iron goods bore misfortune was widespread in Western countries until the end of the nineteenth century. In Poland in the 1830s, for instance, farmers began distrusting metalwares after a crop failure coincided with the introduction of the first iron plow. That may be part of the reason why the majority of farmers continued for a while to prefer using wooden plows.²⁸ Similarly, in traditional Quebec and Acadia, it was considered a bad omen to step on two pieces of iron lying on the ground in the shape of a cross.²⁹

Metal's beneficial power was first noted in rural Italy, where peasant women piled iron implements on the floor to keep themselves safe during storms. If the weather was very bad, they shook the iron chains supporting cauldrons, thinking this practice would ward off the fury of the storm. Alarmed by the noise, the devil, who was once chained in hell, had no choice but to appease the tempest and stop throwing thunderbolts at humans.³⁰ A similar belief existed among Welsh immigrants in Ontario who laid scythe blades over their beds to ward off evil spirits at night. In the Mauricie region of Quebec, putting a piece of iron on a sore was thought to protect an injured person from demons. Another superstition originating in the same region suggests that the best way to avoid worrying was to order seven nails from three different blacksmiths and to throw three of them at your worst enemy.³¹

Ethnologists have collected a wealth of stories that, though difficult to date and verify, obviously had an influence on the lives of people in traditional societies, especially in rural areas. Separating useful information from a variety of Christian and

pagan beliefs must have been an issue for many artisans. Myths and legends referred to a host of attitudes they needed to be aware of. Suggested standards of behaviour for the smith also existed in traditional poems, paintings (fig 5.9) and songs. The degree to which they influenced artisans and their clients will, like the mystery surrounding fire in traditional society, remain largely unknown. To paraphrase Longfellow, it is only at the flaming forge of life that we discover our fortunes.

For historians interested in both continuity and change, ethnological interpretations often appear to underestimate the distinctive traits of different historical periods. Searching for universal values from tales, legends or songs tends to make the past more uniform than it was and, in doing so, neglects the unique characteristics of different cultures. When ethnologists are attentive to cultural singularities of ancient or contemporary societies, they tend to emphasize common values more than conflicting ones stemming from social interaction between

classes, genders or races. Part of the problem is related to the fact that we need to get beyond the obvious meaning of a language and instead explore the social function of symbolic messages. Another part of the problem concerns the difficulty of understanding the evolution of representations within societies and the historical factors responsible for changing cultural perceptions.

Since a large portion of the material for this chapter has been drawn from ethnological studies, the resulting profile of blacksmiths is partial and somewhat disembodied. More information is needed about the nature of these representations, as well as the cultural turning points in the collective perceptions of blacksmiths. As the British historian Arnold Toynbee recalled long ago, values associated with civilizations are always in movement and never fixed; they are more like a journey than a home port.

NOTES

- 1 F. W. Robins, *The Smith: The Traditions and Lore of an Ancient Craft* (London: Rider and Company, 1953), 40-45.
- 2 O. Gandon and E. Baudoin, *Dictionnaire de la mythologie grecque et latine* (Paris: Hachette, 1996).
- 3 Y. Desloges and A. Gelly, *Le canal de Lachine: du tumulte des flots à l'essor industriel et urbain, 1860-1950* (Sillery, Québec: Septentrion, 2002), 146.
- 4 Robins, op. cit., 47-48.
- 5 Ibid., 67-69.
- 6 Ibid., 71-72.
- 7 D. Yates, *Book of Gypsy Folk-Tales* (London: Phoenix House, 1948), 102-105.
- 8 Robins, op. cit., 118-123.
- 9 E. Coornaert, *Les corporations en France avant 1789* (Paris: Les Éditions ouvrières, 1968), 196-197, 205-216.
- 10 A. Rivard, *Contes et propos divers* (Québec: Garneau, 1944), 91-93.
- 11 Robins, op. cit., 66-67; E. L. Jamieson, *The Story of Lanark*, (n.l.: n.p., 1974), 58.
- 12 B. Sulte, "Les légendes des Forges," and Abbé N. Caron, "Légendes des Forges du Saint-Maurice," in *Contes et Légendes des Vieilles Forges* (Trois-Rivières: Éditions du Bien Public, 1954), 7-12, 13-38.
- 13 J.C. Dupont, *L'artisan forgeron* (Québec: Les Presses de l'Université Laval, 1979), 291.
- 14 Louis Fréchette, "Coq Pomerleau," in *Les soirées du Château de Ramesay* (Montréal: E. Sénécal & Co., 1900), 47-63.
- 15 Dupont, op. cit., 277-279.
- 16 Robins, op. cit., 126-127.
- 17 A. D. Vergnaud, *Manuel complet du travail des métaux* (Paris: Librairie encyclopédique de Roret, 1835), 144.
- 18 Dupont, op. cit., 304-310.
- 19 Ibid., 310-311.
- 20 Ibid., 242-243.
- 21 Ibid., 231.
- 22 H. Biron, "Les Forges du Saint-Maurice," *Le Soleil* (Quebec): *Perspectives* (supplement), March 31, 1962, 31.
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- 24 Dupont, op. cit., 236-237.
- 25 Robins, op. cit., 77.
- 26 Ibid., 149.
- 27 Dupont, op. cit., 232, 260, 263-267.
- 28 J. G. Frazer, *Magic and Religion* (London: Watts, 1944), 68.
- 29 Dupont, op. cit., 243.
- 30 L. D. Gordon, *Home Life in Italy: Letters from the Apennines* (London: Methuen, 1908), 210.
- 31 Dupont, op. cit., 243.

CONCLUSION



Third Operation, Forging
Under Hydraulic Press

CONCLUSION

From the early colonial era to the middle of the twentieth century, strategies used by Canadian blacksmiths to develop their craft and adapt to changes affecting it tell a great deal about the importance of apprenticeship, discipline and experience. Other traits that are particularly apparent in the lives of immigrant blacksmiths and their families include resilience, persistence and versatility. These characteristics helped them adapt, not only to the hardships of a new land, but also to the many opportunities that it offered. Such characteristics were also found in the strong-willed women who accompanied ironworkers to remote sites or large urban centres, far from their families, communities and institutions. More isolated than their working husbands, women had to create new support groups, care for the sick and undertake the educational and religious needs of their offspring.

Religion and language were important elements for smiths and their families, but they were less divisive than race. Racial discrimination and, to a lesser degree, the absence of an ironworking tradition appear to be reasons for the lack of non-European smiths. Attempts to exclude early Chinese immigrants from secure and desirable jobs likely explain the absence of blacksmiths among this group. There were some First Nations and African-Canadian smiths, but they were rare in communities of European origin. Those who survived did so in areas settled by their predecessors, such as on Aboriginal reserves, or in urban enclaves.



Figure 1: The early gas-powered front-wheel-drive Moline tractor was a symbol of more important machines to come (Prince Edward Island Archives, P-2708)

Much has been said about the capacity of blacksmiths to adapt to new circumstances and technologies, but this faculty also had its limits. Changes occurring during the early twentieth century affected smiths throughout the Western world. By the end of the Victorian era in England, for instance, both rural and urban blacksmiths were only eking out a living. Whereas some shops became repair depots for agricultural machinery, lawn mowers or bicycles, others were forced to close their doors. Thus in Great Britain, only 3,000 traditional forges existed in 1950, and many of those were more tourist attractions than productive units. In the United States around that time, the situation appears even more dramatic. According to the *Saturday Evening Post* (Philadelphia) for March 1, 1947, the American Association of Journeymen Horseshoers included only 175 members.¹ A similar situation existed in Canada, where the trade ceased to be an integral part of local communities during the first half of the twentieth century. What happened?

Factors that struck a decisive blow to the traditional art of blacksmithing included the development of new steel alloys, which facilitated the mass production of metalware, and the modernization of agriculture (fig. 1) and transportation, which threatened horseshoeing, one of the smith's basic functions. The impact of these changes is seen in blacksmiths' account books, which show a 37 per cent decrease in annual revenue during the first quarter of the twentieth century.² Such diminishing returns forced some smiths to close their shops and look for work elsewhere.

Job opportunities were found, for example, in new industrial high-tech forges equipped with electric arc furnaces that allowed them to supply their own raw materials. These forges used open dies and hydraulic presses to produce elementary components for the automobile industry, aeronautic plants and hydroelectric stations (fig. 2). Although the production of these forges peaked around World War II, in 1986 there were still 35, mainly in Central Canada, employing nearly 4,000 workers.³

For those blacksmiths who continued doing business on a small scale, the replacement of the hand-welding method by the oxyacetylene torch meant that they could produce 7,000 degrees Fahrenheit very quickly and perform a better quality of work. It also helped them increase the amount of work they did. During the twentieth century, for example, smiths used this technique to repair tractors and automobiles, as well as kitchen appliances and swings for children. They even



Figure 2: Forging under a hydraulic press, Canadian Forge Co., Welland, Ontario, c.1918 (LAC, PA-24578)

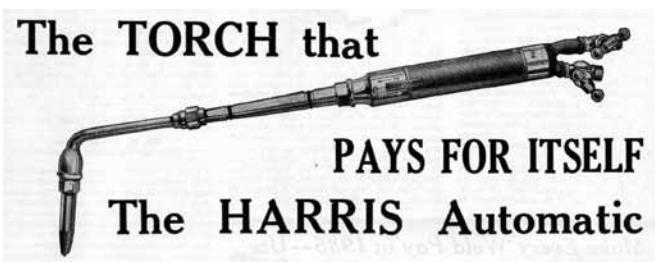


Figure 3: Advertisement for a new torch, 1935 (*Canadian Blacksmith Gas Welder and Automobile Repairman*, Jan. 1935, p.7)



Figure 4: Blacksmith using an acetylene welding torch (BANQ, E6, S7, SS1, P67-60R)

used welding torches to thaw frozen pipes and water mains (fig. 3 & 4).⁴ But one of the most important contributions of this technique was to help revive the making of ornamental ironwork by blacksmiths. A good example of such a renewal is evident in the career of Englishman Frederick J. Flatman, who, after finishing an apprenticeship in Woolwich Arsenal, emigrated to Canada in the early twentieth century. Finding it difficult to practise his trade in Hamilton, he found employment in a car body shop. Fortunately, George Hendrie, a prominent Hamilton truck dealer, provided Flatman with

a blacksmith shop, where he developed his talent as an ornamental iron maker. Flatman is credited with making the Hendrie Park gates near Aldershot, Ontario, in 1953; the gates are considered by some to be the largest decorative iron piece ever fashioned.⁵

Those able to carve out a comfortable living as blacksmiths were successful in doing so because they embraced niche activities, such as shoeing race horses and producing ornamental ironwork (fig. 5 & 6). Some smiths used their traditional skills on large heritage projects, such as the restoration of historic sites at Louisbourg in Nova Scotia and Place Royale in Quebec City. Others specialized in custom pieces that were difficult to mass-produce, such as elevator parts made by Montreal blacksmiths Emile and Ernest Cadieux. When the brothers sold their business on St. Paul Street in 1982, it is said to have been the last artisanal forge in the city.⁶

Many who tried to preserve the traditional art of blacksmithing experienced economic hardships and were compelled to make compromises in order to survive (fig. 7). These artisans were limited to producing a tiny portion of the ironwork they used to provide for their customers. Between 1925 and 1960, mending tools, locks, wheels and



Figure 5: Dean Richards, farrier, shoeing a young trotting horse in 2009. Although methods changed, twenty-first-century farriers continue to remove old shoes, cut, polish and file the hooves, reshape the iron shoes with a hammer and fix them in place with special nails, Canoe Cove, Prince Edward Island, 2009 (Photo by author, DTR)

Suggested Designs for Ornamental Wrought Iron Work

The six designs shown, reproduced by courtesy of "The American Ironsmith," will be of interest to blacksmiths developing demand for this class of work

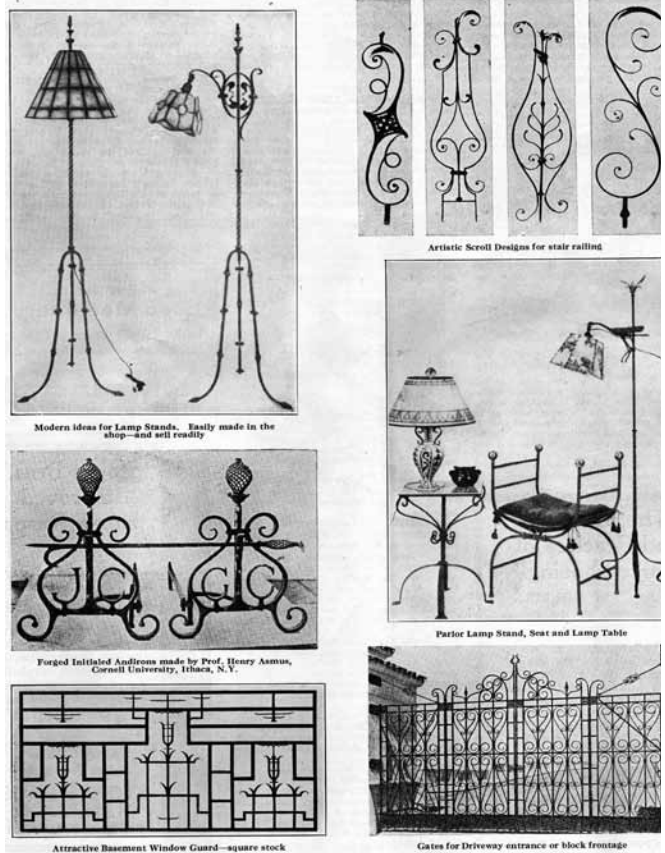


Figure 6: Examples of ornamental ironwork designs, 1931 (*Canadian Blacksmith Gas Welder and Automobile Repairman*, Dec. 1931, p.26)

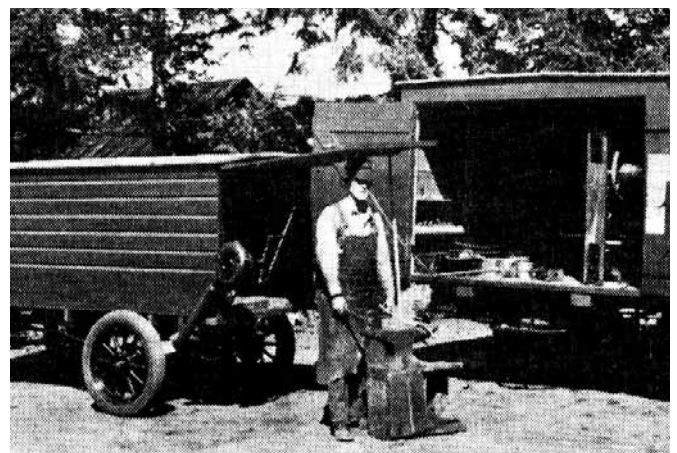


Figure 7: F.W. Pinchbeck's portable blacksmith shop, including a motor-driven electric welder, drill and emery grinder, and a gas welding outfit. The smith used it to travel to customers in the British Columbia interior (*Canadian Blacksmith Gas Welder and Automobile Repairman*, May 1935, p.5)



Figure 8: Late-twentieth-century shop signs:
a. Sign for ornamental iron and welding, Tracy, Quebec, c.1980 (BANQ, E6, S8, SS2, DC81-529, P-23A-35)



b. Decorative sign indicating a blacksmith's shop, c.1970 (BANQ, E6, S8, SS2, DC81- 427, P-22-35)

other ironware occupied more than 60 per cent of their jobs, while during the preceding half-century they represented only 2 per cent. Traditionally important, horseshoeing and the manufacture of hardware now included only one-fifth of

their activities (fig.8).⁷ Thus, by the mid-twentieth century, a symbol of workmanship and a key member of traditional society ceased to appear in the daily lives of most city and country residents.

NOTES

- 1 F. W. Robins, *The Smith: The Traditions and Lore of an Ancient Craft*, (London: Rider and Company, 1953), 153-155.
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- 5 E. Arthur and T. Ritchie, *Iron: Cast and Wrought Iron in Canada from Seventeenth Century to Present* (Toronto: University of Toronto Press, 1982), 80-81.
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GLOSSARY

ACETYLENE TORCH – Welding or shearing instrument that uses acetylene gas to heat metal. This time-saving device was the result of Canadian-born engineer Thomas L. Willson's 1892 discovery that hot calcium carbide transformed into gas when immersed in water.

ANNEALING – Process used to soften steel by slow cooling, after enough heat has been applied, to make it lose its brittleness.

ANVIL – Block of case-hardened iron equipped with a horn and wedge on which the blacksmith hammers, draws, bends, curves and cuts pieces of hot metal.

BLOWING APPARATUS – Mechanical device used by the blacksmith to control air induction in the forge hearth. Once operated manually by a hand lever, this apparatus was powered by steam engines from the middle of the nineteenth century and, later, by electric motors.

BENDING – Method used to work bars, strips or sheets of iron to a desirable shape with hammers, roller bending machines or other mechanical equipment.

BORE – A flat instrument with multiple holes of different sizes used to manually fashion nail heads.

CUTTING – Method of separating hot iron rods with a wedge (fastened to an anvil) or other cutting devices powered manually or mechanically.

CHISELLING – To carve or plane metal with an assortment of cold chisels, drifts and points.

DRILLING – To bore a hole in metal with a reamer, auger, bit-brace or drilling machine.

DRIVING HAMMER – Special hammer used by farriers to fit horseshoes.

DIE STOCK – Instrument used to manually cut threads on bolts and nuts.

FLATTENING – Method of drawing hot metal on a large anvil with a flat hammer in order to erase the stamps left by previous forging and welding work.

FULLER – Blacksmith's tool that fits in the hardy hole of an anvil or on a wooden handle to form rough grooves or set rounded corners on iron objects.

HARDENING – Process of heating and cooling iron to harden it. The blacksmith first applies a specific amount of heat to the outer surface of a piece in a forge. During the cooling stage, the smith has to pay attention to the different shades of red of the piece as it cools from the outside edges towards the centre to determine when to immerse it in water or brine.

IRON ROD – By-product of a rolling mill used as raw material in the manufacturing of nails.

IRON STRIP – By-product of a rolling mill used as raw material in the manufacturing of nails.

PORTABLE FORGE – Small forge mounted on wheels or poles, light and easy to carry. Developed around the end of the eighteenth century, it was first used on war ships for repairing artillery pieces and on battlefields for shoeing cavalry horses. From the 1850s, the portable forge was gradually introduced in metalworking factories.

QUENCHING – To cool a piece of hot metal in a liquid right after it is drawn from the fire. This stops the process of hardening before it extends towards the edges of the object.

RIVETING HAMMER – Light hammer used to install hot rivets while fastening iron beams or iron plates. This process was mechanized in the middle of the nineteenth century.

SHAPING – A process by which a sheet of iron is shaped into a cup by pressure from a combined punch and die. Once the operation completed, the thickness of the cup is supposed to be approximately the same thickness as that of the original sheet.

SHEARING – The cutting of metal sheets by manually or mechanically driving blades.

STEAM HAMMER – A mechanical hammer driven by a compressed steam cylinder set on top of two vertical pillars. The steam both accelerates the dropping of the ram on an anvil-block and provides the energy for raising it back. It was first introduced in England in 1839.

SWAGE – Blacksmith's tool used to form diverse patterns on iron objects. It fits into the hardy hole of an anvil or in a wooden handle.

TONGS – Grasping tool with two jaws used for manipulating hot metal in the fire of a forge and for holding it on an anvil for hammering. Blacksmiths generally have a large variety of tongs to facilitate the gripping of different kinds of objects.

TRIP-HAMMER – A mechanical hammer, developed around the end of the seventeenth century, that works with the aid of a horizontal arm. One end of the arm is linked to the teeth of a rotating wheel, which helps lift the heavy hammer head before it is dropped on the work laid on the anvil. This mechanical aid makes it possible to strike a large number of blows in rapid succession.

TEMPERING – A supplementary heat treatment carried out on iron after it has been hardened. It can produce either a softer, more ductile metal product, or a harder one. Because of its versatility, the process is often used on steel to attain a desired combination of mechanical properties.

WELDING – The fusing of two pieces of metal together under heat, manually with tongs and hammer or mechanically with an acetylene torch.

WROUGHT IRON – A commercial form of iron that has been worked in a “puddling” furnace to expel carbon. It can be welded easily.

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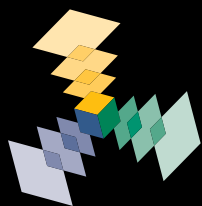
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