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CARFAX

Going Back to Civvy Street: a historical account of the impact of the Everest and Jennings wheelchair for Canadian World War II veterans with spinal cord injury

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ABSTRACT *In February 1945, the Canadian government agreed to provide the Everest and Jennings folding, self-propelled wheelchair to all World War II veterans with spinal cord injury. These wheelchairs replaced wooden and wicker invalid wheelchairs that were usually assigned to hospital wards rather than to individuals. Veterans with spinal cord injury were among the first group of Canadians to use these wheelchairs to participate in community life. By 1947, Canadian veterans had demonstrated that it was possible to return to education, employment and leisure activities using a wheelchair. Drawing on oral history interviews and archival research, this paper provides an account of the introduction of folding, self-propelled wheelchairs into Canada following World War II. It discusses the impact of these wheelchairs on the life experiences of veterans, and outlines the strategies used by these early pioneers to live and work in communities that had neither expected nor planned for individuals using wheelchairs.*

Introduction

At the end of World War II, the Canadian government was one of the first countries in the world to provide a wide range of programmes, services and funding to re-establish veterans, including those with disabilities, in civilian life (Woods, 1953). One group of veterans to benefit from these programmes were those with spinal cord injury.

New programmes for early medical treatment following spinal cord injury had begun at the No. 1 Canadian Military Hospital in Basingstoke, England during the war. In January 1945, the Canadian Department of Veterans Affairs began to develop specialized medical and rehabilitation programmes in Canada. These new programmes dramatically reduced mortality rates following spinal cord injury from

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over 80% in World War I to below 10% by 1946 (Jousse & Botterell, 1947). Other Western countries such as England and the US also developed medical and rehabilitation programmes that resulted in similar dramatic declines in mortality rates. (Guttman, 1946; Bors, 1948).

The Canadian programmes were developed by a coalition of physicians, veterans, and prominent civic and military leaders whose central philosophy was to 'return the patient to independent life beyond the confines of hospital or paraplegic colonies' (Botterell *et al.*, 1946, p. 258). These new programmes revolutionized the life experiences of veterans with spinal cord injury and provided a framework for future civilian programmes (Tremblay, 1995).

One unique aspect of the Canadian programmes was the provision of the Everest and Jennings self-propelled, folding wheelchair. This wheelchair was recommended to the Canadian government by Lieutenant John Counsell in 1943, a Canadian veteran with a spinal cord injury. Counsell recognized that this type of wheelchair together with newly available hand-controls for automobiles provided a means for independent travel in the community.

Initially, officials in the Department of Veterans Affairs were reluctant to purchase this type of wheelchair. However, they finally agreed in February 1945 to provide the Everest and Jennings wheelchair to all veterans with spinal cord injury.

As a result of this decision over 200 Canadian veterans with spinal cord injury were among the first large group of individuals in the world to use this type of wheelchair to participate in community life. They were pioneers in entering education institutions, workplace sites, and sports and leisure activities. Central to their activities was the belief that veterans with disabilities should resume, as much as possible, the activities that they participated in before the war and return to civilian life—Civvy Street.

Once the veterans had demonstrated the value of the wheelchair for independence, they used their newly founded organization, the Canadian Paraplegic Association, to seek support to provide rehabilitation and wheelchairs to Canadian civilians with spinal cord injury.

This paper provides an historical account of the introduction of the Everest and Jennings wheelchair into Canada, and the impact of the wheelchair on the life experiences of veterans. It describes the strategies the veterans used and the difficulties they encountered, as they sought to return to live in communities that had neither expected nor planned for individuals using wheelchairs. Finally, the paper provides an analysis of the limited recognition, following World War 11, among veterans and policy makers that changes in the architectural design of Civvy Street could also provide improved mobility and independence.

Methodology

This historical account has drawn on oral history interviews and archival research. Tape-recorded life history interviews were collected from 32 veterans and civilians who were among the first group of individuals in Canada to live and work in the community following a spinal cord injury.[1] Interviews were also completed with Dr

E. Harry Botterell and Dr Al Jousse, the two physicians who worked with John Counsell to establish the first medical care and rehabilitation programmes for spinal cord injury in Canada, and Dr Gustave Gingras who established the second programme for Canadian veterans at St Anne de Bellevue in Quebec.[2]

Archival research was carried out at the national office of the Canadian Paraplegic Association; the Department of Veterans Affairs, Charlottetown, PEI; and the National Archives of Canada, located in Ottawa. The newsletter of the Canadian Paraplegic Association, *Caliper*, published since November 1945 was also used extensively.

Invalid Wheelchairs

Prior to 1945, wheelchairs were commonly called invalid chairs or bath chairs. Most invalid chairs were made of wood and wicker and were designed to be pushed from behind by an attendant (Kamenetz, 1969; Walking, 1979). Catalogues from hospital and furniture manufacturers show a wide variety of models with no uniform standards (Ward, 1919; Saunders, *ca* 1920/1930; Harter, 1991).

Invalid wheel chairs were usually designed both for the ease and comfort of the human body in sickness or in health and the strength of the attendant required to push the chair (Ward, 1919). Designs of self-propelled chairs driven either by large front wheels or a set of hand operated levers or handles that moved the wheels are found in equipment catalogues during this period. However, these types of self-propelled chairs were not suitable for outdoor travel.

Lever-operated self-propelled invalid chairs were reported to be popular for outdoor travel, in England following World War I (Ward, 1919). One lever operated type of chair, called the Dayton, was provided for outdoor use for Canadian World War I veterans (Bell, 1943), but the Department reported only limited use. Motorized wheelchairs, called tricycles, were used in England, but these were found to be unsuitable for the Canadian climate and distances.

Folding wheelchairs designed for automobile travel were also developed in the early part of the 20th century (Bond, 1914; Kamenetz, 1969). However, folding chairs were usually designed to be pushed by an attendant (Ward, 1919).

In Canada before 1945 a wooden and wicker McFarlane–Gendron wheelchair was used in hospitals and veterans institutions. These chairs were often assigned to hospital wards for patient transport but occasionally were provided to an individual patient (Cross, 1943). The McFarlane–Gendron chair had two large front wheels with two smaller wheels at the rear, it was reported to be unstable when self-propelled outdoors on rough surfaces (Porrit, 1944; Burke, 1991; Waterhouse, 1992).

Spinal Cord Injury Before 1945

There were no successful methods of treatment for spinal cord injury during World War I, and the American physician Harvey Cushing (1927) reported that 80% died in the first few weeks as a result of infection from bed sores and catheterization. Sir

Frederick Treves (1917), founder of the Star and Garter Home for English World War I veterans with spinal cord injury, described their fate in 1917:

> There will be no more lamentable and pathetic figure than the soldier who ... is paralysed and left utterly helpless... here is a man in the very flower of his youth, bedridden for life, unable to move hand or foot, and dependent, at every moment of the day, upon the ministrations of others... the mind is as vigorous and as alert as ever; the eagerness and independence of youth are still aglow in the brain; there are still the intense longing[s] to do, the stimulus to venture, the desire to lay hold of the joys of life;... this mental energy is associated with a body that cannot feel, limbs that cannot move, fingers without touch, and hands as listless as the hands of the dead. (p. 146)

In Canada, Euclid Hall, a large Toronto mansion with 'a massive pipe-organ and space for forty patients proved sufficient' for the small numbers of veterans with spinal cord injury and other serious disabilities, who survived (Morton & Wright, 1987, p. 93). These veterans were expected to remain as bed patients or invalids. John Catto (1943), a World War II Welfare Officer, described their experiences.

> After the last war, paraplegia, double amputation, and serious orthopaedic cases were hospitalized in a separate building, Euclid Hall, in this District, but other than hospitalization, nothing was done to interest these men particularly in using their own initiative and resources to help them obtain, to some degree, their normal usefulness in any field of endeavour.

Civilians with spinal cord injury, like their veteran counterparts, had high mortality rates, and those who survived, were expected to remain as invalids, cared for either at home or in hospital. Irving Hoffman was a university student, in 1927, when he became quadriplegic following a diving accident (Tremblay, 1993). Told by physicians that he would live only a few years at most, his mother decided to take him home. In 1931, Hoffman enrolled as a first year student in Commerce and Finance at the University of Toronto, and received a special exemption from attending class. Local newspapers reported his graduation on 4 June, 1935. 'Wheel Chair Only Classroom But Toronto Boy Gets Degree' (*Toronto Telegram*, 1935) and 'Paralyzed Student to Receive Degree: Becomes Bachelor of Commerce with Honours at University of Toronto':

> Paralyzed from the waist down, spending the wearying hours between bed and an invalid's wheel chair. But there was nothing the matter with Hoffman's head. In 1931 he decided to take the course of Commerce and Finance, take it in his wheel chair. Fellow-students called to compare notes, professors and lecturers dropped in to give him a helping hand. He did not even see a classroom... What has the future in store for this determined youth? He is a Bachelor of Commerce, equipped for business, but that does not take him out of his wheel chair. It may be that as an onlooker and a thinker, his written comment on affairs will be of value. (*Toronto Star*, 1935.)

Robert Waterhouse (1992) was 13 years old when he became quadriplegic following a diving accident in 1939. His family took him home where he remained in bed for 1 year. Then:

> I don't know where they got this wheelchair, I was thankful that we had it. It was ... like a wicker rocker [chair] that had been taken off the rockers... There were two big wheels at the side and one wheel at the front with a tiller to steer. It wasn't a matter of me being able to push, if I was outside, because there was no hand rim.

In the early 1940s, as a patient at the Toronto General Hospital, Waterhouse had limited use of a wheelchair assigned to his hospital ward.

> We had the old wooden chairs which had the big wheels up at the front and little wheels at the back... Several times I would lean forward too far and the whole thing would tilt and I would fall out. We could go out onto the veranda, that was in an inner court, [but] you still didn't see anything outside of the hospital.

James Burke (1991) was 20 years old in 1940 when he became paraplegic following an automobile accident. He found 'the attitude [of the staff] at that time was to pray and die, but I didn't accommodate people. I was a little perhaps stubborn about that'. Burke lived in chronic care hospitals in Toronto for 7 years, 4 months and 13 days.

> There was no possibility of returning home simply because of the physical factors involved and there was no outside support for that either, so I was stuck.... I didn't have a wheelchair, there were only a half dozen wheelchairs in the hospital and they had to be shared among people. So one was often confined to bed for long periods of time. These were those old type of wicker chairs and you couldn't go anywhere in them. [In one hospital] there were a few cerebral palsy chaps there, of an age where they had been kicked out of children's hospital. If they transgressed any rule ... they'd take their wheelchairs away from them and leave them in bed for two weeks. Wheelchairs were for transferring people to treatment .. they were not for patients to sit around in. These Everest and Jennings [wheelchairs] that you see now, they weren't known to us then.

In the 1930s some physicians began to question the belief that there was no effective treatment for spinal cord injury and that death was the natural outcome (Munro, 1940). In Canada, Dr Harry Botterell, a neurosurgeon at the Toronto General Hospital, successfully treated three patients with spinal cord injury in the late 1930s.

During World War II Botterell was the chief neurosurgical officer at the No. 1 Canadian Neurological Hospital in Basingstoke, UK, where he established a specialized programme for spinal cord injury that dramatically reduced early mortality following injury (Feasby, 1953). Central to Botterell's work during this period was a belief that veterans with spinal cord injury could return 'to the main stream of life rather than be set aside as a hermit' (Burke, 1955, p. 8).

Dr Gustave Gingras (1994), a medical student in Montreal during the early 1940s, recalled his teachers' descriptions of the outcome of spinal cord injury. 'These people don't live more than three months. They get terrifying pressure sores, and they get infection of their kidneys, infection of their lungs, and they die... I have never seen one who lived more than three months.' After graduation Gingras joined the Royal Canadian Medical Corps and began to work at Basingstoke in 1944, where he reported Botterell encouraged physicians to consider that veterans with spinal cord injury would survive and return to work following the war.

At Basingstoke, Botterell treated Lieutenant John Counsell who had received one of the first Canadian battlefield spinal cord injuries in the ill-fated Dieppe landing in 1942. Botterell, keenly aware that there were no specialized programmes in Canada for spinal cord injury, urged Counsell, who was financially secure, to undertake the leadership of veterans in Canada and lobby the Canadian government for programmes.

When Counsell returned to Canada he found, as Botterell had predicted, no rehabilitation programmes for spinal cord injured veterans. During this period Counsell worked alone to rehabilitate himself. He had a wood and wicker wheelchair which he used to travel from his bedroom on the second floor to a small porch outside his room. However, this wheelchair was heavy and awkward, and couldn't easily be carried up and downstairs nor could it be placed in an automobile for travel (Gordon, 1994).

Introduction of the Everest and Jennings Wheelchair

The Everest and Jennings automobile folding wheelchair was developed in 1933 in California. Henry Jennings, a mining engineer, had become paraplegic through a mining accident in 1919 (Kamenetz, 1969). Initially, given a 2-year life expectancy, he worked from a 'cumbersome wooden wheel chair as a radio expert and engineer' (Everest & Jennings, 1974). In 1927, he met Herbert Everest, a mechanical engineer. Together, they designed and built a wheelchair using lightweight metal aircraft tubing and established a small factory in California, in 1932, to manufacture wheelchairs. The wheelchair could be collapsed to fit into the trunk or backseat of an automobile. An early Everest & Jennings (1941) brochure advertised: 'Work! Play! Go Anywhere! without that invalid look.' However, sales of the wheelchairs during the Depression and early years of World War II were poor (Everest & Jennings, 1974; Shapiro, 1993).

Counsell got his first Everest and Jennings wheelchair in 1943, after hearing about it from a fellow veteran who was the son of the Canadian Ambassador to the US (Wood, 1943). Counsell taught himself to transfer independently in and out of the wheelchair, and into an automobile. He quickly recognized that the combination of a folding, self-propelled wheelchair and an automobile modified to be driven with hand-controls could provide a new means of independent transportation for disabled veterans.

In 1943, Counsell met Lou Wood, a wealthy Toronto businessman, who was Chairman of the Toronto Rehabilitation Committee of the Citizens' Committee for

Troops in Training. Wood and Counsell began to lobby the government for programmes for veterans with paraplegia. Wood (1943) summarized Counsell's early views:

> Mr Counsell regards the rehabilitation of paraplegic, double amputation, and other cases requiring chairs, as a practical problem in need of intensive study and the application of a new point-of-view... He regards *mobility as the initial road to Rehabilitation* [italics added].

In December 1943, Counsell met with physicians and officials at the Christie Street Military Hospital in Toronto to demonstrate his Everest and Jennings wheelchair. He recommended these new types of wheelchairs be purchased by the government for veterans with spinal cord injury. John Catto (1943), a Veterans' Welfare Officer, described this demonstration:

> We might say that it is only since obtaining this chair that Mr Counsell has been able to be around to any great extent. The way in which he handles himself, getting in and out of motor cars, and in and out of ordinary chairs, on to this wheel chair, is really amazing, and certainly I as a layman can see a great improvement in his physical well-being, since this chair has been obtained.

Counsell gained the support of most of those present at the meeting (McCormick, 1943; McMane, 1943; Ryan, 1943), with one notable exception. R. Wilson, the Superintendent of the Toronto Orthopaedic Division of the Department of Pensions and National Health, was responsible for the supply of wheelchairs in Toronto. Wilson (1943) agreed that this new type of folding wheelchair would be convenient for veterans who travelled by car, however, he argued that 'the price of $162.50 is quite high, and the intrinsic value of the chair certainly would not warrant payment of such a figure'. Instead, Wilson recommended that the Department explore the development of a similar and cheaper Canadian chair and throughout 1944 his department tried unsuccessfully to support this development (Wilson, 1944–1945).

The Canadian Revolution in the Management of Spinal Cord Injury

Despite the work of Botterell in England and Counsell in Toronto, Canadian soldiers with spinal cord injuries returned to Canada to find physicians and nurses who expected that, like their World War I counterparts, they would remain invalids and die within a few years of their injury. Veterans were cared for as bed patients rarely allowed to leave hospital and with no expectation that they would ever return to live in the community (Robichaud, 1994; Mann, 1995; Riordan, 1995). They were, however, often bedridden because of a limited supply of wheelchairs and the belief among hospital staff that wheelchairs were for patient transport. Jack Higman (1992) was a dispatch rider in England in 1943 when he became paraplegic following a motorcycle accident. After initial treatment at Basingstoke he returned to Canada and was placed at the Christie Street Military Hospital, in Toronto, in 1944. He remembered:

> They fed us, they changed the bed, they gave us enemas. That was about our life. Outside of reading papers and books and ... listening to the little radios we had, that was our life. There was nothing else.... We had the old wooden [wheelchairs] which you couldn't fold up. There was only one... You wheeled this great big tractor down the halls. We were getting up at 6 o'clock in the morning, the first one up got the wheelchair. (laughter) You knew darn well you weren't going to get out of bed the rest of the day because if someone got it first they would be gone.

In 1943, Counsell and Wood, along with Botterell in England, began to lobby the Canadian government to:

> Provide a separate building, preferable within the city limits, in charge of a competent neuro-surgical doctor who is fully cognisant with the necessity of getting these men up and active... paraplegias [*sic*] in many cases may not be able to use wheelchairs, etc., because of the location of their injury, but in any cases that are injured just above the hips, and where the use of their arms is not restricted, that these men could be up and around in chairs, and in many cases, gainfully employed (Catto, 1943).

The government agreed in 1944 to convert a large mansion in central Toronto into a rehabilitation centre and the centre, called Lyndhurst Lodge, opened in January 1945. The same month Botterell returned to Canada and found, as he had expected, veterans confined to their beds with little hope of leaving the hospital. Once again he developed a specialized unit for early medical treatment at Christie Street and, along with Counsell and Wood, undertook the development of Lyndhurst Lodge as the first rehabilitation centre for spinal cord injury in Canada. In March 1945, he recruited Dr Al Jousse to be the medical director of Lyndhurst Lodge responsible for the co-ordination of all aspects of treatment (Botterell, 1979). Jousse had been unable to serve in the Royal Canadian Army Medical Corps during the war because of a physical disability that required the use of two canes for walking.

In February 1945 the Canadian government finally approved the purchase of Everest and Jennings wheelchairs (Privy Council of Canada, 1945), 14 months after Counsell's initial recommendation. Interestingly, the March 1945 Canadian purchase order was the first large order ever received by Everest and Jennings from any government to meet the needs of World War II veterans (Everest and Jennings, 1974). The company later began to supply wheelchairs to the US government in 1946 a development which sometimes interfered with its ability to maintain a consistent Canadian supply (Everest, 1946).

By May 1945, Counsell, along with seven other World War II veterans with spinal cord injury, founded the Canadian Paraplegic Association (CPA), the first organization in the world founded and administered by individuals with spinal cord injury. The Association operated on a principle of mutual aid among paraplegics and the central principle of the Association was 'that paraplegics could lead useful, reasonably normal lives' (O'Connor, 1947). Unlike many other veterans' associations, CPA was organized to lobby government and to provide services for both

veterans and civilians. One of its central roles was securing rehabilitation and wheelchairs for civilians.

Lyndhurst Lodge, significantly not called Lyndhurst Hospital, as it later became, was designed to be an intermediate step between hospital and the community. It was the site for physical retraining and learning how to manage activities of daily living using a wheelchair. Its location in the community was considered an important factor in its success because patients 'are permitted greater personal freedom than is compatible with the efficient operation of an active treatment ward' (Botterell *et al.*, 1947, p. 61).

At Lyndhurst veterans were encouraged to get dressed in street clothes each day rather than remain in hospital gowns. A dining room was established for meals and patients were responsible for getting themselves to and from meals. Jousse encouraged veterans to use their wheelchairs to go home on weekends or go out into the community in the evenings (Jousse, 1991a). Ken Langford (1991), one of the first veterans at Lyndhurst, recalled the early atmosphere.

> There was no bed patient nonsense at Lyndhurst. Everybody was up and around, doing as much as they could. Participating in as much of the therapies as they could take... they were encouraged to have friends in, go out to a local restaurant or pub, go downtown shopping with the help of a few volunteers. It was a base from which to experiment with going out into the community during the rehabilitation period. It was very upbeat... when you are out on your own you would have to try things... You learn more on the weekends out or weeks at home, than in hospital.

The Canadian government, at the urging of Botterell, Counsell and Jousse, opened three other centres at St Anne de Bellevue Veterans Hospital, in Quebec, Shaughnessy Veterans Hospital, in British Columbia, and Deer Lodge Veterans Hospital, in Manitoba.

By 1946 veterans were beginning to purchase automobiles, for which they were given preference during the post-war period. Veterans were not given automobiles as were American veterans in the late 1940s (Heath, 1985, p. 6); however, most were able to purchase automobiles with re-establishment funds, disability pensions and other allowances they received from the government. Automobiles were adapted for hand controls which were installed without cost by manufacturers. The veterans discovered, as Counsell had predicted, that the combination of the collapsible wheelchair and hand-controlled automobiles provided a new independence. Lorenzo Robichaud recalled his experiences at St Anne de Bellevue in Quebec.

> They never told us much about what to expect. We had some social workers who would come and interview you. I don't think they knew too much themselves what to expect from us. It was left to the individual to decide what he was going to do with himself. Some discovered for instance that they could drive a car, so they started working on that, getting manual controls to be able to drive a car... well once they could go out, drive a car, then they found that maybe they could work at something. It was all done individually, then.

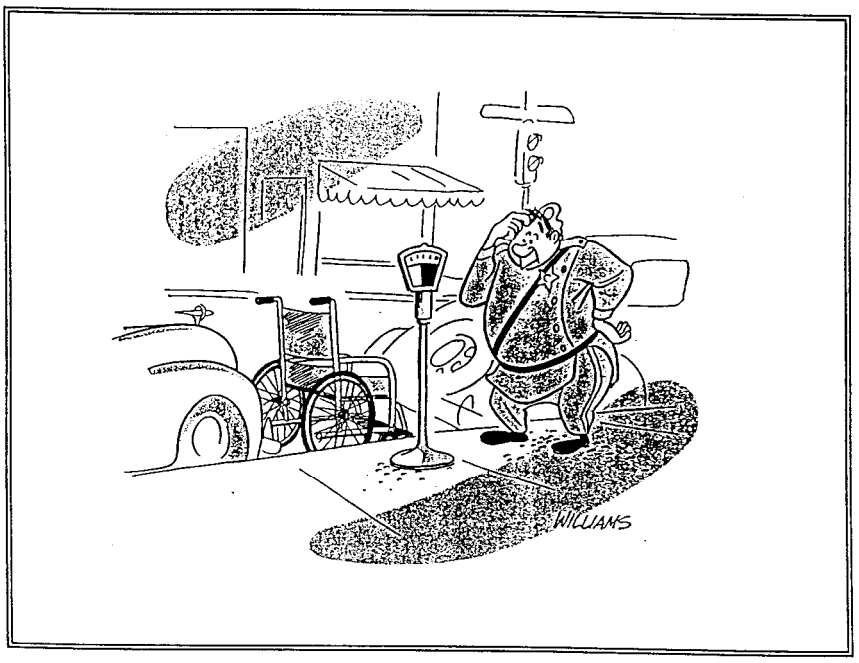

FIG. 1. *Caliper* (March 1949), p. 19.

The veterans used a trial and error method to learn how to manoeuvre the wheelchair in the community. They developed the ability to do a 'wheelie', to jump the wheelchair up and down over curbs. Veterans shared their experiences in the community at the rehabilitation centres and through the pages of their newly developed newsletter *Caliper*, which featured articles and cartoons about travelling in the community in a wheelchair. (Figs 1 and 2).

The advent of the wheelchair presented an interesting dilemma for both physicians and veterans. This dilemma was illustrated by a cartoon in the first issue of *Caliper* in November 1945 that showed a soldier standing up from a wheelchair and throwing away his crutches, with the motto, 'We Can Do It.' The cartoon offered a picture of walking as ultimate goal of treatment following spinal cord injury (Fig. 3). It also illustrated the cumbersome wooden wheelchairs that were still in use in most Canadian military hospitals during this period.

During the 1940s the use of gait training with braces, called calipers and crutches was being developed (Munro, 1945). In Canada, veterans with sufficient upper body strength, were taught crutch walking. However, many veterans discarded their crutches and braces when they became skilled in the use of the newly available wheelchair. Langford (1991) described this decision:

> I was able to walk probably a hundred feet or so and then I was ready to collapse. It didn't make much sense spending all that energy covering a short distance on a perfectly smooth floor or sidewalk when you could do

FIG. 2. *Caliper* (Fall 1949), p. 17.

> it quickly and easily with a wheelchair, and use your energy for more important things. It didn't take long for people to get over the idea that walking was that essential.

Robichaud had a similar experience.

> I was wounded in 1944.... in August 1945, nothing had been done towards rehabilitation yet.... But then in St-Anne they started working for real there on rehabilitation. The emphasis then was on trying to make a paraplegic walk. And that certainly delayed our rehabilitation for months and months. They tried that for well over six months. I could walk a bit. They finally came to the realization that was not the way to go. It was too much trouble. Just too difficult physically and then you're liable to fall and injure yourself. Then these [Everest and Jennings] wheelchairs became available so they decided the answer was we were going to be confined to a wheelchair and that's it.

Returning to Civvy Street

In order to return to the community veterans first had to find housing that was accessible to wheelchairs. Some veterans returned to their family homes with minor modifications and, when possible, the help of family members to manage stairs. Glenn Jewett (1992) returned to live with his parents in Toronto in 1945. His father carried the weight of his legs as he pulled himself upstairs and downstairs using his arms. He recalled that '[I] had to live upstairs and it was an awful job getting up and

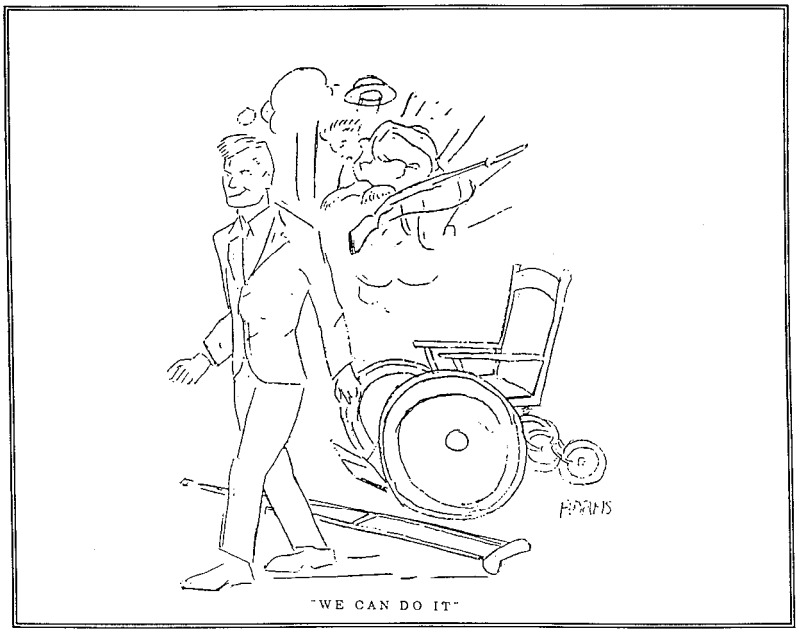

FIG. 3. *Caliper* 1(1), 19 November, 1945.

down each day on the stairs, but I did it because my arms were strong. My parents were more than willing. My Dad was, despite his age, quite athletic and strong.'

Ken Langford (1991) and his wife followed the earlier example of John Counsell:

> [To live in the community] first of all you have to have a place to live where you are relatively independent with a wheelchair. We lived down at the Windsor Arms Hotel for quite a while because they had bed sitting rooms with kitchenettes in addition to the full hotel service. Fortunately they were able to free up a suite that we could use.... After that, we were able to get an apartment which worked very well with the wheelchair and some minor modifications by the landlady. We moved there and I have been out of hospital ever since.

Funding was provided by the Department of Veterans Affairs for ramps or other modifications to make the house accessible to wheelchairs. In Montreal, a group of houses designed to accommodate wheelchairs were built by Veteran's Affairs. However, veterans later moved from this housing which was usually built in clusters, to live throughout the community.

Gingras (1994) director of the spinal cord unit at St Anne de Bellevue in Quebec, tried to discourage the development of clusters of housing.

> I was always dreadfully against the fact that we should have a colony for amputees or a colony for spinal cord injury, because I knew that the conversations that these people would have together would relate only with

FIG. 4. *Caliper* (Winter 1950), p. 26.

> their disabilities as it was the case in the wards in the hospital and this colony would become a ghetto.... [However] it was easier at that time to convince the builder to render a bunch of houses accessible if you did it in a row of houses. So that was done. But it didn't last very long. People got jobs and they earned money, they built their own houses, accessible according to their disability.

When travelling in the community, veterans recognized the barriers caused by the design of buildings. A series of cartoons in the early issues of *Caliper* humorously explored the relationship between buildings and wheelchairs (Figs 4 and 5). The approach of most veterans was pragmatic and they sought either to find buildings without stairs or to develop individualized solutions. They did not ask for modifications to buildings. Langford (1991) described their approach.

> There were usually level entrances somewhere. Certainly in hotels, theatres. In the hotel there would be a service entrance that was usually level....Depending on the type of place the doorman or a couple of the staff, if there were three or four steps, by pre-arrangement [would] lend a hand.... *The big thing was to get there.* [italics added] For many years we had reunion dinners at the Royal York Hotel. [It] ... isn't the easiest place to get into because there are steps at every entrance. But the initial technique was that we would park at the back and go in through the service or garbage entrance, in through the kitchen and take the service elevator.

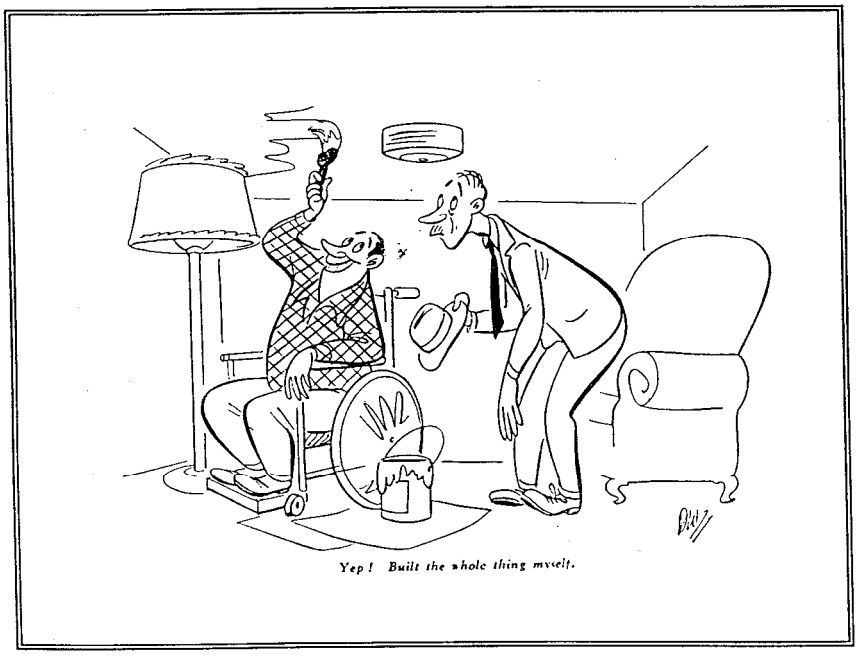

FIG. 5. *Caliper* (Fall 1951), p. 11.

In 1946, as the veterans were re-established in the community they began to seek admission to trade schools or university, to look for employment, and to return to sports and leisure activities. They recognized they were pioneers, often the first and only individual using a wheelchair. They used simple, pragmatic individually designed approaches and the assistance of able-bodied volunteers. The establishment of a university or trade school classroom at Lyndhurst had been rejected by Jousse (1991b) 'to get people used to going back into the community rather than having them isolated in institutions'. Able-bodied classmates, often fellow veterans, carried veterans in their wheelchairs up and down stairs. Only one reference to permanent modifications at a university has been found. The University of Montreal created a wheelchair accessible entrance to the law school for Robichaud (Gingras, 1994). This entrance required only moderate renovations because the law school was a new building that had elevators inside and the entrance was not visible from the front of the building.

The activities of veterans at universities across Canada were described during this period both in the pages of *Caliper* and in newspapers and magazines across the country (Hewelcke, 1946; O'Connor, 1946a; Petrie, 1948). Burke (1949a) summarized the impact of their experiences:

> The graduation of these paraplegics is a tribute to their personal courage and perseverance. However, all of them recognize that their degrees are due to the excellent mobility they have attained through E.J. wheelchairs and hand-controlled automobiles.... They are deeply appreciative too, of

> D.V.A.'s assistance and the wonderful co-operation of the University's faculty and students, and are keenly aware that their graduation and entrance into professions symbolizes the shattering of the myth of the limitations once thought applicable to paraplegics.

Bill Purvis, another World War II veteran, commented on the value of role models who were doing 'paraplegic trail blazing at the University.... set an invaluable example by demonstrating *that wheelchair types* [italics added] can readily attend University if they are so inclined.... he simply had to follow their footsteps—or is it wheelchair tracks' (Burke, 1953).

While the veterans demonstrated that wheelchairs should not be a barrier to university education, officials on Canadian campuses did not recognize them as trail blazers. Indeed, a comprehensive report on World War II veterans at the University of Toronto made no reference to the successes of disabled veterans (Line, 1951); instead changes were made on an individual temporary basis to aid veterans (J. M. Brady, personal communication, January 1995). No references have been found that university officials expected or planned for civilian students using wheelchairs on campus during this period.

Canadian employment policy for World War II veterans, disabled or non-disabled, was to re-establish them in 'significant remunerative employment....It is our first duty to make sure that those who saved us and our country have assurance now that we mean business in this matter of providing opportunity in civil life' (England, 1943, p. 13). A Casualty Rehabilitation Section to assist veterans with disabilities find appropriate employment, was staffed by veterans of World War II, many of whom were veterans with serious disabilities (Woods, 1953).

Counsell, along with the members of the Canadian Paraplegic Association, worked to ensure that veterans with spinal cord injury were included within all aspects of the veterans programmes and services. Everest and Jennings wheelchairs provided the mobility for veterans to seek employment. *Caliper* described the activities of veterans using wheelchairs in the workplace in a wide variety of occupations that included office work, law, business, drafting, tool-and-die work, jewellery repair and poultry farming. The veterans again considered themselves as pioneers, proving that individuals using a wheelchair could successfully enter a wide variety of occupations (Kelsey, 1947).

However, as with education there were no calls for modifications or redesign of workplace sites for wheelchairs in the pages of *Caliper* between 1945 and 1959. Instead, articles focused on the strategies individuals used to adapt to the existing environment. As with other activities the veterans sought employment locations without stairs and when stairs could not be avoided, individuals didn't apply for the position or used able bodied volunteers for assistance. Not until 1959 did *Caliper* address the issue of architectural barriers. Many of these articles were authored by World War II veterans with spinal cord injuries (Curren, 1959; Mann, 1963).

In the late 1940s, *Caliper* published numerous articles and photographs describing different sport and recreation activities that had been accomplished using a wheelchair (Kelsey, 1949; O'Connor, 1946b). In an article, called 'The open road',

James Burke (1949a) wrote 'anything is possible with the exception of a moose hunting trip a hundred miles north of Algoma or a canoe trip through Algonquin Park'. However, by 1951, *Caliper* reported that Eric Lyle, a World War II veteran living in Dryden, Ontario, had received the first Canadian license to hunt from a car (White, 1951). A 1952 story described the activities of 'paraplegic veteran, Jean Rochon of Lachine, an ardent and successful angler and hunter.... Johnny drives a car equipped with hand controls, runs and repairs his own motorboat, shoots skeet, fishes, and hunts.' The story included a photograph of Rochon on a successful deer hunt using his wheelchair (Dube, 1952).

The Everest and Jennings wheelchairs were initially provided only to veterans with spinal cord injury. The wheelchairs quickly proved successful and veterans with other types of disabilities in Veterans' Hospitals requested this type of chair. Initially, Veterans Affairs refused these requests (Bell, 1945; Underhill, 1945), however, gradually Everest and Jennings wheelchairs were provided, first, to veterans with double amputations and later as a result of continued requests from both veterans and medical staff the Everest and Jennings wheelchair approved for general hospital use (Gunn, 1947). Fred Pate (1947), an Assistant District Administrator for Veterans Affairs, summarized this viewpoint:

> The new type of light [Everest & Jennings] chair has a definite influence on the morale of our patients and because of its easy handling enables them to get more of a 'life' out of the invalid period.... Young patients will not tolerate the old type of chair. They will not stand for outmoded equipment.... Further I do not think the Department should take any exception to the extra cost involved.

Thus, 2 years after its introduction into Canada the collapsible wheelchair was changed the concept of a wheelchair from an invalid chair to transport patients to a method of independent transport in the community. This new technology was a major factor that enabled veterans with spinal cord injury to begin to live and work in the community.

Discussion

The veterans set the pace, they ventured out in wheelchairs in all kinds of weather. They drove hand-controlled cars, and travelled by plane and train. They attended school and university, social events, the theatre and, later, played wheelchair sports.

In fact, they pioneered successful living and working in the community. By their example they taught the public that there was life energy and purpose in human beings even when seriously physically impaired.

They demonstrated that once educated appropriately they could compete successfully in professions, business, specialized trades and live in their own homes.

Thus, they demonstrated that as tax payers they more than returned to government coffers the costs of outlay for rehabilitation (Botterell & Jousse, 1988).

The introduction of the Everest and Jennings folding wheelchair in 1945 for Canadian World War II veterans with spinal cord injury changed the life experiences for many Canadians with physical disabilities. Between 1945 and 1947, the concept of the wheelchair changed from vehicle for invalids to a new method for independent travel in the community. The installation of hand-controls on automobiles was the second factor in this new mobility. Together the folding wheelchair and the hand-controlled automobile provided the opportunity to return to independent life in the community.

The World War II veterans with spinal cord injury were a small group of pioneers. They demonstrated that it was possible to adapt to life in the community using a wheelchair. Their main strategies were to develop individualized strategies to overcome the obstacles they found in the community, to use able bodied volunteers for assistance, or avoid environments that had stairs and curbs.

In the period following the war veterans and the health professionals developing rehabilitation programmes did not ask for the removal of stairs or the installation of elevators. This could be viewed in part due to their desire to be recognized as an ordinary member of the community. When recognition as a member of the ordinary community was an important goal, calling for changes in the environment, such as an elevator or a ramp would have signified that individuals were different from others.

The Canadian veterans were often the first individual in their communities to use a wheelchair either in the workplace or in educational institutions. Prior to the end of the war many individuals with physical disabilities were considered as invalids and usually remained at home or in hospitals travelling in the community only when pushed by an attendant.

The World War II veterans received positive responses from the community as men who had been disabled in the honourable service of their country. When they returned to university or the workplace they were seen as veterans whose special needs could be readily met by able-bodied volunteers, usually veterans themselves. However, they were not seen as pioneers representing future civilian students or employees who could also enter into community activities using a wheelchair.

One of the significant developments of World War II was the development of rehabilitation programmes for spinal cord injury (Bors, 1948; Allen, 1964/65; Guttman, 1973; Heath, 1985), the introduction of the self-propelled collapsible wheelchair and hand-controls for automobiles and the formation of self-help groups of individuals with physical disability.

The introduction and use of wheelchairs and hand-controls for automobiles varied across different countries. In England programmes were developed for veterans and civilians who were provided with self-propelled wheelchairs and motorized three-wheel vehicles called tricycles. However, collapsible wheelchairs and automobiles were not available until the 1950s (*The Cord*, 1947–1955; Ministry of Health, 1955a,b). Despite early efforts, no self-help organizations of veterans or civilians with spinal cord injury were formed until the 1970s (Oliver & Hasler, 1987).

The US did not begin comprehensive rehabilitation programmes for veterans

allowances to purchase automobiles for all veterans with spinal cord injury (Spurling & Woodhall, 1959; Heath, 1985). Like Canada the US developed specific policies and programmes for veterans. However, unlike Canada, the Paralyzed Veterans Association did not include civilians within its mandate. Separate civilian associations were established in the late 1940s (Heath, 1985).

It is beyond the scope of this paper to describe and compare the impact of technological changes in wheelchair and automobile design following World War II. However, future historical research in this area could provide more information about the impact of technological change on independence and the value of self-help groups to support the introduction of technology.

John Counsell and the early members of the Canadian Paraplegic Association had always recognized that the services and programmes they received were not available to civilians. From its inception the Association had included civilians within its mandate. Beginning in 1945 they began to lobby for rehabilitation programmes and equipment for civilians. During the 1940s and 1950s the veterans and the civilians who joined the Association established rehabilitation programmes for civilians with spinal cord injury across Canada and became the first major provider of wheelchairs to civilians with spinal cord injury.

James Burke (1991) had remained in Toronto chronic care hospitals for seven years, he recalled Counsell's impact on his life:

> Counsell being the head of the Canadian Paraplegic Association brought me over a wheelchair. I didn't have a wheelchair, there were only half dozen or so wheelchairs in the hospital and they had to be shared among people. So one was often confined to bed for long periods of time. These were those old type of wicker chairs and you couldn't go anywhere in them. This gift or loan of wheelchair was a godsend to me.... it might have been a D.V.A. acquisition, who knows! Anyway they gave it to me and that changed my life. I could get out, go around the neighbourhood, use it for physical tone up. I was curious to see the world after all this time. [I moved into the Toronto Y.M.C.A.] They had an elevator, they had a cafeteria. With my crutches and braces I could manage the steps out the back and I could get somebody to take my wheelchair. In a way it was accessible, roughly.

The civilians who followed the veterans tried to use the same approach of adaptation to the existing environment. However, unlike the veterans, the civilians who followed them did not receive the special funding provided to veterans to cover the costs of wheelchairs, home modifications, equipment and attendant care. Neither were they welcomed back into the community as the veterans, who were viewed as men who had been disabled in the honourable service of their country. The experiences of the civilian pioneers are described in a subsequent paper, 'When Elevators Were For Pianos' which provides an account of the experiences of the first civilian pioneers during the period 1945 and 1970, and the emerging recognition of architectural barriers that began, in Canada, in the late 1950s.

Finally, it is interesting to note that, despite the early dramatic examples of

Canadian World War II veterans living and working in the community using wheelchairs, a barrier-free environment has not yet been realized in Canada, 50 years after the World War II veterans returned to Civvy Street.

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NOTES

[1] Life histories were collected from 26 men and six women. Nine men were veterans of World War II. Half of the individuals had spinal cord injuries that resulted in paraplegia. Duration of spinal cord injury at the time of interview ranged from 26 to 60 years: 12 individuals were injured before 1945, 10 individuals between 1945 and 1955, and 10 individuals between 1956 and 1968. Typed transcripts were reviewed and edited by all participants. Thirty-one individuals chose to have their names included within this research and one chose to use a pseudonym.

[2] Tape recordings and transcripts of all interviews will be deposited in the Archives of theHannah Chair for History of Medicine, McMaster University, Hamilton, Ontario.

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