

## MEN AND BOOKS

### THE HISTORY AND CHARACTER OF GOITRE IN CANADA

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IT IS THE purpose of this paper to review the history of and, to some extent, the character of goitre in Canada and to indicate their significance for the etiology and prevention of the disease. For this purpose, it will be convenient to discuss first the history in eastern Canada, primarily in the Provinces of Quebec and Ontario.

#### WAS GOITRE PRESENT AMONG THE INDIANS?

The early French explorers and missionaries have left us many detailed descriptions of the Indians, their physique, their illnesses, their methods of treating these, etc. Several of the longer accounts have been republished by the Champlain Society and most of the others have been collected in the original French or Italian and in English translation in the Jesuit Relations and Allied Documents. In all of these early accounts that I have been able to locate, there is but one mention of goitre—that in the *Brève Relation* of Bressani, of 1653, in which he described the Huron Indians among whom he was stationed on the Peninsula of Ontario: "They are not found either hunchbacked or dwarfed, or very corpulent, or with goitre . . ."<sup>1</sup>

Shortly thereafter, Gendron, Docteur en Médecine, who had spent several years among the Hurons, published his book.<sup>2</sup> He made no mention of goitre.

A few years later, Boucher, who was one of the early settlers in, and later Governor of Trois-Rivières, Quebec, wrote: "Generally speaking, the Indians, both men and women, are very well made; and one sees very few among them having natural defects, such as squinting, being humpbacked, or even lame, unless as the cause of an accident."<sup>3</sup>

The first evidence of the presence of goitre, anywhere in Canada, that I have been able to find is in an Algonquin word for "goutre" in a manuscript dictionary compiled about 1688 by Louis Andrée.<sup>4</sup> He had served along the northern shore of Lake Huron, also at Michilimacinac and, for a long time, at Green Bay. He was recalled to Quebec in 1683, and in 1691 was in the vicinity of Chicoutimi and Lac St-Pierre.<sup>5</sup> Just where he had seen goitre is not known.

Even in 1715, Aubery,<sup>6</sup> who included words for "goutte", "migraine" and "écrouelles" in his dic-

tionary of the Abniqui language, had none for "goitre". Between 1740 and 1748, Luc Du Jaunay,<sup>7</sup> at Michilimacinac, compiled a dictionary of the Ottawa language of 576 pages. He had words that meant goutte, peste, apoplexia, aposthème, vérole, etc., but I found none that meant "goitre" or "grosse gorge". At about the same time, Potier<sup>8</sup> in the vicinity of Detroit compiled a "Vocabulaire Huron-Français" which contains a list of "maladies", but "goitre" is not among them.

It would appear that goitre was not present at all among the Indians for more than 150 years after the coming of Europeans and that, even in the seventeenth and eighteenth centuries, it was confined to a rather small district, presumably in the vicinity of Quebec.

#### PROVINCE OF QUEBEC

The first known record of goitre among the French settlers dates from 1731, when Boucault<sup>9</sup> wrote: "Il y a cependant quelques femmes attaques de gouette cequi provint accqu'on prétend des Eaux de neiges . . ."

In 1781, Baroness von Riedesel,<sup>10</sup> on her three-day travel by road up the St. Lawrence to Quebec, wrote of the inhabitants: "Die Frauen haben häufige Kropfe." (Many of the women have goitres.)

A few years later, Hunter<sup>11</sup> saw "a woman with a large wen" at La Valtrie and, in 1800, Blanchet<sup>12</sup> published his account of goitre among the women in the valley of Saintigan or Chaudière. "Cette maladie, si l'on peut ainsi la nommer (car elle n'occasione aucune douleur) commence plus au moins de bonne heure, y par la torpitude de la tumeur, devient constitutionnelle."

In the same year, Barton<sup>13</sup> wrote: "Cases of the goitre have been observed in different parts of Lower Canada, particularly in the low and marshy grounds, between St. Johns and Montreal."

Shortly thereafter, Lambert<sup>14</sup> reported that: "Many of the females at Three Rivers are troubled with wens, swelled necks, and other disorders of the throat, as mumps, swelling of the glands, etc. In other parts of Canada, there are but few who are afflicted with these complaints; but in Three Rivers they seem to be more general, particularly among the women . . . If swelled necks were occasioned by snow-water, I think that they would prevail equally at Quebec and Montreal . . ."

A more general distribution was indicated, though not definitely stated, by John Morley, of Boucherville, in 1810 or 1811:<sup>15</sup> "Goitres (the disease of the neck so common in Switzerland) are not unfrequent in Canada." There is little question about the situation in 1830, when Bowie<sup>16</sup> stated: "There is in many districts amongst the native French peasants, scarcely a family, without

\*From the New York University College of Medicine, New York. Aided by Grant A-473-C from the National Institutes of Health and Grant G-4121 from the National Science Foundation.

some of its members being affected with goitre . . . It is a fact, notorious among the residents in Canada, that the disease is mostly confined to the French peasants, and never appears among the natives of Britain, though they have been many years in the country. I have known it among their children, though rarely."

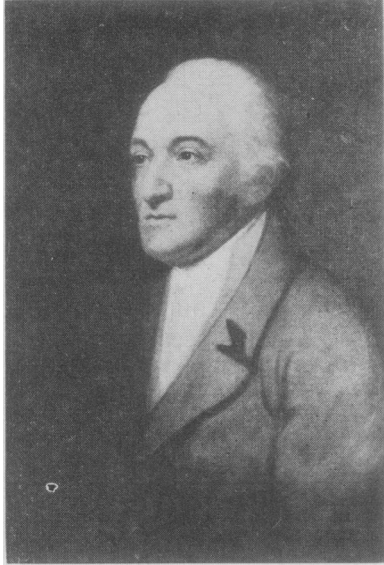


Fig. 1.—Benjamin Smith Barton, 1766-1815. His "Memoir concerning the Disease of Goitre" (Ref. No. 13) is well worth reading and considering, even today.

There was considerable discussion about the causes of goitre. Among the more unusual ones suggested was that by Morris,<sup>17</sup> who claimed that prevalence of goitre was in some way connected with forest land and that, owing to the clearing of such forests, there had been a diminution in the prevalence of goitre. This decrease seems to have been real, but the idea that it was due to the clearing of forests was promptly denied by Crawford,<sup>18</sup> who declared that goitre was still common in Montreal and other cities and that it was acquired there by recent immigrants from other countries. He added what seems to have been the first notice of a congenital goitre on this continent. The mother had also developed a goitre during her pregnancy. However, hers had subsequently regressed but that of the infant had not, to the time at which he wrote.

I have found no other pertinent references to goitre in the province for a number of years. A few patients with goitre were treated at the hospitals of Montreal and Quebec, but their numbers, as well as those for the total of all patients, were too small to permit satisfactory statistical treatment. In October and November 1872, out of 320 patients treated at the Dispensaire St-Joseph, there was one with "goitre" and one with "goitre exophthalmique".<sup>19</sup> This seems to have been the first record of exophthalmic goitre in Canada.

Shortly thereafter, interest in goitre seems to have increased. *L'Union Médicale du Canada*, volumes 3 to 7, 1874 to 1878, published seven notes of papers

in foreign journals, and also a review by La Chapelle,<sup>20</sup> in which he stated: "Nous avons ici dans notre pays plusieurs endroits où le goitre semble être endémique également; il serait intéressant de chercher si on en viendrait à la même conclusion que les autorités précédentes, c'est-à-dire, que l'eau est la cause principale."

Among the districts in which goitre was most prevalent was the parish of St-Sauveur, about 44 miles north of Montreal. Nelson<sup>21</sup> reported that a Dr. Kennedy knew 12 or 15 families from this section who had moved into Montreal "in nearly all of whom the disease obtained in some form. In several it became partially developed cretinism." If this diagnosis was correct, it would appear to be the first notice of cretinism in eastern Canada.

A few years later, Laramée<sup>22</sup> of the Hôpital Notre-Dame, Montreal, wrote of goitre "Ici, en Canada, nous le recontrons assez fréquemment", but of exophthalmic goitre "Le goitre exophthalmique est assez rare."

As late as 1898, Campbell<sup>23</sup> of the Montreal General Hospital ended the first paragraph of a report on one case of exophthalmic goitre with the sentence, "As the disease is not common, I have thought that having a case to illustrate it, it might be to our advantage to give a brief survey of it, as recorded by the latest authorities."

Bradley<sup>24</sup> seems to have been the first to call attention to the frequent occurrence of cystic goitres. He divided these into two groups: "colloid cysts" (adenomatous nodules with retention) and those with larger cysts, most of which showed evidence of hemorrhage. Of the 18 goitres, the surgical removal of 16 of which was reported by Shepherd,<sup>25</sup> Bradley found four to be of the former type and nine of the latter. In the following year (1897), Archibald<sup>26</sup> reported three more cases of hemorrhagic cystic goitres.

The reports of the hospitals confirm the gradual appearance of goitre, apparently simple or not differentiated as to character, then of exophthalmic goitre and cystic goitre, with gradual replacement of the latter by the former and by hyperthyroidism, with or without goitre.

The annual reports of the Montreal General Hospital record one bronchocele among 908 patients in 1858. Thereafter, there were none among the 16,811 from 1859 to 1872, inclusive. In the following 23 years, 1873 to 1895, there were 50 goitres among 46,000 patients, with the first "Graves' disease" being recorded in 1876 and the first cystic goitre in 1895. In the following year, there were 11 cystic goitres. Figures for some of the subsequent years are lacking but those for 1901 to 1919, after which such details were no longer given in the annual reports, are summarized in Table I. This also contains summaries of data obtained from the annual reports of the Royal Victoria and Notre-Dame Hospitals and from data from the Hôtel-Dieu, kindly supplied by Dr. Gaston Gosselin. It

TABLE I.—GOITRES,<sup>1</sup> PER YEAR, IN EACH OF FOUR HOSPITALS IN MONTREAL. PROPORTION OF TOTAL ACCOMPANIED BY HYPERTHYROIDISM OR PRESENT AS CYSTIC GOITRE.<sup>2</sup>

| Years     | Royal Victoria  |                   |                 | Montreal General |                   |                 | Notre-Dame       |                   |                 | Hotel-Dieu      |                   |                 |
|-----------|-----------------|-------------------|-----------------|------------------|-------------------|-----------------|------------------|-------------------|-----------------|-----------------|-------------------|-----------------|
|           | Total per year  | Hyperthyroidism % | Cystic goitre % | Total per year   | Hyperthyroidism % | Cystic goitre % | Total per year   | Hyperthyroidism % | Cystic goitre % | Total per year  | Hyperthyroidism % | Cystic goitre % |
| 1901 - 5  | 13 <sup>3</sup> | 73                | 15              | 12 <sup>4</sup>  | 11                | 25              |                  |                   |                 |                 |                   |                 |
| 1906 - 10 | 20              | 43                | 18              | 22 <sup>5</sup>  | 45                | 36              | 1.8              | 22                | 44              |                 |                   |                 |
| 1911 - 15 | 38              | 57                | 19              | 27 <sup>6</sup>  | 46                | 18              | 2.8 <sup>8</sup> | 27                | 27              |                 |                   |                 |
| 1916 - 20 | 75              | 56                | 22              | 33 <sup>7</sup>  | 55                | 27              |                  |                   |                 |                 |                   |                 |
| 1921 - 25 | 126             | 63                | 1               |                  |                   |                 |                  |                   |                 | 53 <sup>9</sup> | 79                | 12              |
| 1926 - 30 | 147             | 71                | 0.7             |                  |                   |                 |                  |                   |                 | 67              | 67                | 16              |
| 1931 - 35 | 171             | 74                |                 |                  |                   |                 |                  |                   |                 | 75              | 62                | 21              |
| 1936 - 40 | 140             | 66                |                 |                  |                   |                 |                  |                   |                 | 115             | 50                | 26              |
| 1941 - 45 | 151             | 98                |                 |                  |                   |                 |                  |                   |                 | 99              | 48                | 10              |
| 1946 - 50 | 132             | 97                |                 |                  |                   |                 |                  |                   |                 | 117             | 56                | 1.5             |
| 1951 - 55 | 142             | 97                |                 |                  |                   |                 |                  |                   |                 |                 |                   |                 |

1. All enlargements of the thyroid, including thyroiditis and, after 1925, hyperthyroidism without goitre. The exclusion of the latter would lower the proportion present with hyperthyroidism from about 50% to about 40% but would have practically no effect at 97%.
2. Includes "cystadenoma" and "adenocystoma."
3. 1904 and 1905.
4. Eight months of 1901, all of 1902 and 1905. 1903 and 1904 not available.
5. 1906, 1908, 1909, 1910.
6. 1911 - 1914. 7. 1917 - 1919. 8. 1906 - 1909. 9. 1925 - 1930.

would seem that cystic goitres were once quite common but that their numbers had decreased. It is not clear why this decrease should have come more than 20 years later among the patients of Hôtel-Dieu than among those of Royal Victoria.

As in many other regions, goitre in the province of Quebec seems to be a disorder that is much more common in rural districts than in cities or towns. Thus Springle<sup>27</sup> found it to be rare among natives of the city of Montreal, though common elsewhere on the island. He also stated that it "was not common in the city of Three Rivers or in the larger villages adjoining". (Compare with Lambert.<sup>14</sup>) But, as Adami<sup>28</sup> pointed out, Graves' disease was to be found in Montreal and other cities.

Springle, like Osler<sup>29</sup> before him, emphasized the rarity of cretinism.

Charlton<sup>30</sup> undertook a study of the distribution of goitre on the island of Montreal. "Where the wells are deep and the soil chiefly clay, goitre is less prevalent than where the wells are shallow and the soil more sandy. These shallow wells invariably contain surface water only, while the deeper ones, although containing more or less surface water, are supplied chiefly from water-bearing strata of sand or gravel."

Turning to Quebec City, we find that 752 cases of goitre were treated at the Hôtel-Dieu in the ten years 1929-1938. Vézina and Jobin<sup>31</sup> studied the records of 666 cases. Of these, 523 had hyperthyroidism and 73 had the classical triad of Basedow's disease: goitre, exophthalmus and tachycardia.

Curiously enough, none of these 666 patients came from the Ile d'Orléans, but many others did live along the banks of the St. Lawrence, below Quebec. The fairly frequent occurrence of goitre there had been noted by Benoit<sup>32</sup> and was also indicated by the description of a cure for goitre in use at St-Denis-de-Kamarouska, about 80 miles below Quebec, where there was some commercial fishing for eels and sardines and where fish was usually eaten on Fridays during the summer.<sup>33</sup>

It would appear, therefore, that (1) goitre was not present before the coming of Europeans; (2) it was first of limited and local occurrence; (3) it

later became more prevalent; (4) its character changed, from simple to cystic to hyperthyroidism; (5) it was not often accompanied by cretinism; (6) its prevalence varied with the water supply; (7) it was common in places on the St. Lawrence, well below Quebec; and (8) its prevalence at Three Rivers had diminished in the course of some 80 years.

#### ONTARIO

Apparently, goitre did not become common in Upper Canada until many years after it had been quite prevalent in Lower Canada. None of the accounts by early travellers or settlers refer to it. Douglas<sup>34</sup> was concerned chiefly with the diseases of the army but he also wrote of the diseases of the Indians without mentioning goitre. However, a few years later, Talbot<sup>35</sup> stated: "They [the women] are also very commonly subject to swelling of the neck usually called goitres . . . I have only to remark that the neck swells to a prodigious size without producing any pain, or other unpleasant effect but that of disfiguring and discomfiting the patient."

There seems to have been some interest in goitre in Kingston by 1829 for, according to Riddell,<sup>36</sup> the *Kingston Gazette and Religious Gazette* of 1828-29 contained an account of the cure of a "wen" by washing it two or three times a day with water in which salt had been dissolved.

There is a long gap in the records.

In 1873, Smith<sup>37</sup> wrote: "Five-and-twenty years ago, the disease was very prevalent in many parts of the counties of Kent and Essex. The land was only half-cleared of timber, badly drained, and consequently most of the water used in those neighbourhoods was bad. Since the country has been cleared up, and better drained, the disease seems to have diminished."

#### Hamilton

According to Holbrook,<sup>38</sup> "The type of disease found among patients in Hamilton General Hospital back at that time, or from 1868 to 1886 and 1887,

windy who's scent, Isabel—if it will be any satisfaction to you to hear it. Since we are mutually on this complimentary discourse, it is of no consequence to smooth over facts.

I do not understand what you would imply, she said, drawing her shawl round her with a fresh shiver. How on the wrong scent?

With regard to your husband and that Hare girl. You were blindly, outrageously jealous of him.

Go on.

And I say I think you were on the wrong scent: I do not believe Carlyle ever thought of the girl—in that way.

What do you mean? she gasped.

They had a secret between them. Not of love. A secret of business; and those interviews they had together, her dancing attendance upon him perpetually, related to that, and that alone.

Her face was more flushed than it had been through out the interview. He spoke quietly now, quite in an equitable tone of reasoning: it was his way when the ill temper was upon him; and the calmer he spoke the more cutting were his words. He need not have told her this.

What was the secret? she inquired in a low tone.

Nay, I cannot explain it: they did not take me into their confidence. They did not even take you; better, perhaps that they had, though, as things have turned out, or seem to be turning. There's some disputable, secret attached to the Hare family, and Carlyle was acting in it, under the rose, for Mrs. Hare. She could not seek out Carlyle herself, so she sent the young lady. That's all I know.

How did you know it?

I had reason to think so.

What reason? I must request you to tell me.

I overheard scraps of their conversation now and then in those meetings, and so gathered my conclusions.

You told a different tale to me, Sir Francis, was her remark, as she lifted her indignant eyes toward him.

Sir Francis laughed.

All stratagems are fair in love and war.

She dared not immediately trust herself to reply, and a silence ensued. Sir Francis broke it, pointing with his left thumb over his shoulder in the direction of the cradle.

What have you named that young article there?

The name which ought to have been his by inheritance—*Francis Levison*, was her icy answer.

Let's see—how old is he now?

He was born on the last day of August.

Sir Francis threw up his arms and stretched himself, as a fit of idleness had overtaken him; then advanced to the cradle and drew down the covers.

Who is he like, Isabel. My hand: some's self?

Were he like you in spirit, I would pray that he might die ere he could speak or think, she burst forth, and then remembering the resolution marked out for herself, subsided outwardly into calmness again.

What else? retorted Sir Francis.

You know my disposition pretty well by this time, Isabel, and may be sure that if you deal out small change to me, you will get it back again with interest.

She made no reply. Sir Francis put the clothes back over the sleeping child, returned to the fire, and stood a few moments with his back to it.

Is my room prepared for me do you know? he presently asked.

No, it is not, she quietly rejoined. These apartments are mine now, they have been transferred into my name, and they can never afford you accommodation. Will you be so obliging—I am not strong—as to hand me that writing-case?

Sir Francis walked to the table indicated which was at the far end of the great barn of a room, and taking the writing-case from it, gave it to her.

She reached her keys from the stand at her elbow, unlocked the case and took from it some bank-notes.

I received these from you a month ago, she said. They came here

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Fig. 2.—Advertisement in the Guelph Herald, September 3, 1873.

TABLE II.—NUMBER OF CRETINS, PER YEAR, IN THE HOSPITAL FOR SICK CHILDREN AND NUMBERS, PER YEAR, OF GOITRES AND PROPORTIONS PRESENT WITH HYPERTHYROIDISM AND AS CYSTIC GOITRES IN THAT AND TWO OTHER HOSPITALS IN TORONTO.  
See footnotes 1 and 2 to Table I.

| Years      | Sick Children    |                  |                   | Toronto General |                  |                   |                  | Western   |                  |                   |                  |
|------------|------------------|------------------|-------------------|-----------------|------------------|-------------------|------------------|-----------|------------------|-------------------|------------------|
|            | Cretins per year | Goitres per year | Hyperthyroidism % | Years           | Goitres per year | Hyperthyroidism % | Cystic goitres % | Years     | Goitres per year | Hyperthyroidism % | Cystic goitres % |
| 1905 - 09  | 0                | 0                |                   | 1906 - 10       | 36               | 24                | 2.7              |           |                  |                   |                  |
| 1910 - 14  | 0.2              | 1.4              |                   | 1912 - 16†      | 61               | 41                | 2.3              |           |                  |                   |                  |
| 1915 - 19* | 0.5              | 0.75             | 33                |                 |                  |                   |                  |           |                  |                   |                  |
| 1920 - 24  | 2.0              | 2.0              | 30                |                 |                  |                   |                  |           |                  |                   |                  |
| 1925 - 29  | 1.6              | 9.2              | 44                |                 |                  |                   |                  |           |                  |                   |                  |
| 1930 - 34  | 1.4              | 16.6             | 90                |                 |                  |                   |                  |           |                  |                   |                  |
| 1935 - 39  | 2.4              | 18.8             | 89                |                 |                  |                   |                  | 1938 - 39 | 68               | 65                | 4.4              |
| 1940 - 44  | 2.8              | 5.0              | 84                |                 |                  |                   |                  | 1940 - 44 | 73               | 59                | 2.9              |
| 1945 - 50† | 3.3              | 5.3              | 88                |                 |                  |                   |                  | 1945 - 50 | 65               | 52                | 2.3              |
| 1951 - 55  | 5.0              | 3.6              | 61                |                 |                  |                   |                  | 1951 - 55 | 79               | 45                | 0.5              |

\*No data for 1916.  
†Six years.  
‡Figures for 1911 not available.

was very different from what it is today. There were very few cases of diabetes or goitre among the patients."

The situation had changed by 1920. In that year, out of a total of 8587 patients at the Hamilton General Hospital, there were 21 cases of goitre, or 0.24%. The numbers and the proportion of goitres rose steadily to about 120 to 150, or about 1%, which continued from 1927 to 1937. Thereafter, the proportion diminished, being only 0.73% the year of the centennial. After 1944, the absolute numbers also fell, so that for the three years 1953-1955, the average number was 34, or 0.1% of the total. (Calculated from data supplied by Miss Lillian Johnstone, R.R.L.)

Toronto

In 1879, Fulton,<sup>39</sup> professor in Trinity Medical College, surgeon to the Toronto General Hospital, and co-editor of the *Canada Lancet* since 1870, wrote of the thyroid: "It is occasionally very much hypertrophied and constitutes bronchocele or goitre. In some countries, as in Switzerland and Northern Italy, bronchocele is very prevalent in both sexes." Sixteen years later, Dickson<sup>40</sup> stated: "The immediate vicinity of Toronto is not goitrous, yet as a recognized medical and surgical centre it draws many cases from an extensive territory around."

In 1903, Bingham,<sup>41</sup> assistant professor of clinical surgery, reported on 33 successful operations for goitre; and four years later,<sup>42</sup> on a total of 73. In other words, he had 40 additional cases in the four years.

The first report of Graves' disease seems to be that by Graham<sup>43</sup> in 1880. Nevertheless, as late as 1901, Stafford,<sup>44</sup> lecturer at the Women's Medical College and associate editor of the *Canadian Journal of Medicine and Surgery*, wrote: "Graves' disease, which is accompanied by violent palpitation of the heart, staring of the eyeballs and an enlargement of the thyroid gland, is not of everyday occurrence."

The figures in Table II show a gradual increase in the ratio of "hyperthyroidism" to "goitres" in the Hospital for Sick Children from 1915-19 to 1933-44

and indicate a similar change at the Toronto General Hospital from 1906-10 to 1912-16. They also show the rather small number of cretins brought to the Hospital for Sick Children, as well as the increase and subsequent decrease in the proportion of cystic goitres among adults.

TABLE III.—NUMBERS OF GOITRES, PER YEAR, AND PROPORTION PRESENT WITH HYPERTHYROIDISM OR AS CYSTIC GOITRES, IN THE CIVIC HOSPITAL OF OTTAWA.  
See footnotes to Table I.

| Years     | Goitres per year | Hyperthyroidism % | Cystic* goitres % |
|-----------|------------------|-------------------|-------------------|
| 1925 - 29 | 193              | 56                | 22                |
| 1930 - 34 | 154              | 56                | 38                |
| 1935 - 39 | 146              | 46                | 38                |
| 1940 - 44 | 137              | 18                | 62                |
| 1945 - 49 | 136              | 30                | 41                |
| 1950 - 53 | 153              | 36                | 39                |
| 1954      | 105              | 72                | 6                 |
| 1955      | 122              | 76                | 0                 |

\*Includes "adenoma, with colloid retention."

Ottawa

I have not found, in the professional literature, any information regarding goitre in Ottawa. The reports of the Civic Hospital are unusual in the persistence of a large proportion of cystic goitres down to the abrupt disappearance of this diagnosis in 1954 and 1955.

The history of goitre in Ontario does not differ from that in Quebec. There was the same late appearance, general spread, spontaneous diminution in some localities, and later appearance of exophthalmic goitre.

This conclusion from the medical literature is confirmed by examination of newspapers, almanacs and similar publications. In the latter part of the nineteenth century and in the early years of the twentieth, these abounded in advertisements of proprietary medicines and in those by resident, and travelling, quacks.

In 1873, a nostrum "California Vinegar Bitters" (see Fig. 2) was widely advertised in the United States and, to a lesser extent, in Canada. Another, an "Excelsior Electric Oil" or "Eelectric Oil", made

in Phelps, N.Y., was also advertised in Canada. Both of these frequently included goitre in a long list of conditions for which their use was advocated.

In the same year, a travelling quack, J. A. Devlin of Hamilton, included goitre as the sixth of a list of 36 disorders that he was prepared to treat (*Petrolia (Ontario) Advertiser Sentinel*, June 27, 1873).

Examination of hundreds of issues of 1873 and later years yielded no mention of goitre. From 1886 to 1893, inclusive, the "Almanach du Peuple" (Montreal) advertised a "Savon 10—pour faire disparaître la grosse gorge (goitre). Aussi pour toute espèce d'engorgement."

The next mention of goitre in any advertisement in this almanac was in 1932, when ALSA was advocated for a number of conditions, including goitre.

I found no mention of goitre in a large number of other newspapers and almanacs until, in 1910, Absorbine, Jr. was recommended for goitre and other conditions. Later that year, its use for goitre was emphasized (*Ottawa Evening Journal*, June; *La Presse* (Montreal), October).

Probably there were occasional other advertisements such as that of the "Cancer Remède du Dr Percy. Tumeur et Goitre guéri sans le couteau opération ou douleur" (*La Presse*, January 15, 1910), but I have found none, other than that for Savon 10, before that year that indicated that goitre was frequent enough for specific exploitation.

## THE PRAIRIE PROVINCES

### Manitoba

The Red River Settlement was the subject of several books and of many chapters in others. Certainly, these people were as dependent as any upon the produce of the region. Nevertheless, there is no indication of the presence of goitre there until the close of the nineteenth century. Before that, several travellers who later reported the presence of goitre at Edmonton and other places in Alberta and Saskatchewan<sup>57-67</sup> passed through Fort Garry without mentioning goitre. Indeed, many travellers emphasized the remarkably good health and excellent physique of the settlers.

John West<sup>45</sup> spent about four years there. He wrote: "The climate of Red River is found to be remarkably healthy. . . . We know of no epidemic, nor is a cough scarcely ever heard among us. The only cry of affliction, in breathing a sharp pure air, that creates a keen appetite, has been "Je n'ai rien pour manger. . . ."

Several years later (1830), Campbell<sup>46</sup> came to Fort Garry. Shortly after his arrival, Mr. Cochrane told him "So healthy is the climate that but for the occasional dropping off of old people, death would be forgotten by us altogether." Campbell lived there for four or five years and, thereafter, travelled

widely in the Rocky Mountain region. I found no mention of goitre in his journal.

William Cowan<sup>47</sup> was surgeon at Fort Garry from 1852 to 1855 and after several years at Moose Factory he returned to take charge of Fort Garry in 1863. Most of the medical references in his diaries date from his service as surgeon. Many diseases were mentioned, but not goitre.

In 1859, Dawson<sup>48</sup> wrote of the half-breed population of the prairie provinces: "In physical appearance, the half-breeds are far superior to either of the races to which they are allied . . . they are a hardy, vigorous and active race."

Specifically of the half-breeds of Red River, La Mothe<sup>49</sup> stated: "Physiquement, les métis sont un race de fort beaux hommes, grands, forts, bien faits, au teint plus ou moins foncé . . ." and, of the climate, "le climat du Nord-Ouest Canadien est éminemment sain."

In 1892, after "Thirteen Years in the Prairies," Pennefather<sup>50</sup> wrote that the climate of Winnipeg was favourable for patients with asthma and phthisis but that there was much catarrh and rheumatism there. He did not mention goitre. Discussing agriculture in Manitoba, he said "Sheep do well." Some 20 years later, the situation had changed. Spencer<sup>51</sup> wrote of Manitoba, "No disease other than goitre has caused any particular trouble."

The files of *Le Métis*, of St. Boniface, from 1878 to 1881, and of the *Manitoba Free Press* from January 1905 to January 1924, were examined. There were many advertisements of proprietary remedies and by resident and travelling quacks. The first mention of goitre *found*\* was in a small "personal" advertisement on May 31, 1918, by a resident "drugless physician". The first display advertisement appeared on September 14, 1919, and was by S. W. Hughson of Toronto.

The earliest available report of the Winnipeg General Hospital was that of 1895. In that year, there were two patients with cystic goitres and one with exophthalmic goitre, in a total of 1525. In the following five-year periods, there were 20 in 10,569, 25 in 17,289, 73 in 26,389, and finally 32 in 11,704 in the two years 1911-12. Thereafter, such information was no longer given in the annual reports.

As in eastern Canada, cystic goitres, at one time, constituted a considerable proportion of the total. In the four years 1895-1898, there were 11 cystic goitres in a total of 20 but in 1911-1912 there were only 7 out of 32. In contrast, the proportion of exophthalmic goitres increased from 25% in 1895-98 to 50% in 1911-12.

That the latter change continued is indicated by a paper by Fahrni.<sup>52</sup> In about 30 months, he had performed 320 thyroidectomies. Of these, exophthalmic goitre, including primary hyperthy-

\*It was impracticable to examine every issue. Those for a week, or more, were examined at intervals of several months. When mention of goitre was found, the previous issues were examined to determine the date of first appearance.

roidism, with or without exophthalmos, constituted 56%. If toxic adenoma be included, the sum would be 86%. On the other hand, there were only 12 cystic goitres, or 3.75%.

A feature of juvenile goitre in Winnipeg was the marked differences in its prevalence in different schools. This was noted by Hamilton and McRae<sup>53</sup> in 1925, and again by Abbott<sup>54</sup> in 1932, both of whom related these differences to differences in racial or national origin.

Since the greatest incidence was found among the children of Jewish, Ukrainian and Polish immigrants, Hamilton and McRae examined 45 of these, 7 to 20 years of age, who had arrived after January 1, 1925. Only three, or 0.7%, enlarged thyroids were found, as compared with about 80% in the general school population of similar extraction. Hamilton and McRae wrote: "The absence of goitre among these people undoubtedly indicates that there is some anti-goitre factor present in the country from which they emigrated but not present in this country."

It seems to me that this is extremely doubtful. It is certainly at least as likely that there was a goitrogenic factor in Winnipeg that did not exist, or was not so active, or was of a different strain, in the countries from which they came. Without precise information, it is difficult to be certain, but it is probable that there was a great deal of goitre in their native countries. To the extent to which they came from the Carpathian region, this is certain.

Hamilton and McRae also noted that the 48 Indian pupils in a school some little distance from the city of Winnipeg had no goitres. "These pupils, it will be remembered, have no water to drink other than that from which our Greater Winnipeg Water Works supply is obtained, and therefore might be expected to show a large number of goitrous children, if the only factor producing such was the absence from that water of iodine. The remarkable absence of goitre among these Indians will have to be accounted for in some other way." Could it not have been absence of close contact with goitrous children? (That Indians in contact with whites have goitres has been known for North America since Barton's day<sup>13</sup> and in South America for an even longer time.<sup>55</sup>)

By the time of Abbott's survey, the proportion of children with goitres had diminished greatly. Abbott gave the major credit for this to the use of iodized salt. In the absence of any controls, the conclusion is of doubtful validity. He also held the greater use of cabbage and fats to be responsible for the greater percentage of goitres among the children of central European, including Jewish, extraction. It is now certain that cabbage can have little part in causing goitre in humans<sup>56</sup> and, in the absence of any details as to consumption, it may be doubted that Jewish children ate more fat than did the others. They certainly ate no pork and, probably, little lamb or mutton.

### Alberta

The history of goitre in this province is particularly interesting, for it furnishes an example of the sudden appearance of goitre and cretinism, of the gradual disappearance, first of the latter and then of the former, and a return of goitre after an apparent absence of about 50 years.

Before the first permanent settlement at what is now Edmonton, the region and that to the north and west had been visited by at least five trappers and explorers who have left us records of their travels and observations—Hendry,<sup>57</sup> Thompson,<sup>58</sup> Coues,<sup>59</sup> McKenzie<sup>60</sup> and Harmon.<sup>61</sup> None mentioned goitre.

In 1819, John Richardson, the physician who accompanied the first Franklin Arctic exploration, visited Edmonton. From his notebook, Franklin<sup>62</sup> later copied Richardson's description of goitre and *cretinism*. The disease was reported to Richardson as also existing on the head waters of the Peace and Elk (now Athabasca) Rivers. It was explicitly stated that the disease was not known at Carlton House. This was Richardson's own observation, for he had spent considerable time there.

In 1841, Sir George Simpson travelled along both branches of the Saskatchewan River. When on the Bow, or South Saskatchewan (after having been lower down on the south fork and from Fort Carlton to Edmonton on the north), he wrote: ". . . the water, like that of the Alps, was known to give the goitre, even as far down as the forks of the two great branches of the Saskatchewan. . . ." The forks are well below Fort Carlton, where Richardson had said there was no goitre in 1819.

A few years after Simpson, De Smet<sup>64</sup> wrote, apparently of both branches of the Saskatchewan, "In this climate, wens are not infrequent." On February 6, 1858, Hector, a physician and member of the Palliser exploration expedition,<sup>65</sup> wrote:

"Goitre is very prevalent among the residents here [Edmonton] and at the Rocky Mountain House, but in a modified form, and I have seen only one case in which there is any approach to cretinism. I tabulated the details of 50 or 60 cases, but have not discovered any one condition or habit of life that is common to all that suffer from the complaint. The only curious feature seems to be that children born at one fort are never attacked till removed to the other, and it again disappears on their return to their native place."

The immunity of children born at one fort until taken to the other is difficult to understand in terms of the "iodine-lack" hypothesis. It is consistent with the view that there were two strains of a goitrogenic agent. Be that as it may, the definite statement that he had seen "only one case in which there is any approach to cretinism" shows how marked the change had been since 1819.

Milton and Cheadle spent the winter of 1862-63 at Fort Carlton. In his journal under date of October 8, shortly after their arrival, Cheadle<sup>66</sup>

noted: "Goitre frequent amongst dwellers on banks of Saskatchewan: limestone and carbonate of lime plentiful." There was a dance, of which they wrote:<sup>67</sup> ". . . some of the girls were good-looking, but many of them were disfigured by goitre, which is very prevalent among the half-breeds at all posts on the Saskatchewan, although unknown among the Indians."

Since they later travelled along the Saskatchewan to Edmonton, we may believe that this statement, made after their return to England, indicates that goitre was still common in Edmonton.

Whether this was so or not, there is no known record of goitre at Edmonton or elsewhere in Alberta for more than 50 years. The files of the *Calgary Tribune* from 1887 to 1890 and of *The Calgary Daily Herald* of 1914 contain many advertisements of proprietary medicines, but I found none for goitre. The *Edmonton Daily Bulletin*, from September 25, 1914, through 1917, contained the announcement of a local surgeon that he would treat goitre. In 1918, another surgeon added goitre to the conditions he was prepared to treat. In 1917, the disease was again prevalent, at Calgary and at Edmonton and in their respective vicinities. Dr. F. J. Shepherd of McGill University came to investigate. He found goitre but not cretinism. Among the persons to whom he spoke was T. H. Whitelaw, who had been at Edmonton for 19 years; the first ten in general practice, thereafter as health officer. In his report Shepherd<sup>68</sup> quoted him: "I am personally acquainted with many 'old timers' and their families who were here when I came here 19 years ago, and I cannot say that I recollect seeing a single case among them."

In 1932, Walker<sup>69</sup> published the results of the analyses of a large number of water supplies. He wrote: "In correlating the prevalence of goitre in Alberta with the lack of iodine in the water supply, the relation does not hold as closely as has been found in other countries. For example, in the mountain region where the iodine content of the water is low, goitre is rare, but in the foothills and neighbouring districts to the east where the iodine content is also low, goitre is endemic both in humans and in animals."

I believe that this is the first mention of goitre in animals in Alberta.

### *Saskatchewan*

As mentioned above, goitre along the north branch of the Saskatchewan, though not present at Fort Carlton in 1819, was noted as early as 1841 and again in the winter of 1862-63. The only mention of it along the south branch was in 1841. Thereafter, there appears to be no record of its presence anywhere in Saskatchewan until the twentieth century. Even then, "spot-checks" of the *Regina Morning Leader* from October 1917 to March 1924 disclosed many advertisements of proprietary medicines but none for goitre.

In 1934, Binning<sup>70</sup> made a study of the incidence of goitre among Saskatoon school children. As in many other places, this was the greater among the poorer families and, as in Winnipeg, among those born abroad or of foreign-born parents. Iodine prophylaxis was instituted. This was followed by a marked reduction in incidence. However, in 1938 Binning<sup>71</sup> wrote: "This past year a marked increase was again noted in certain schools." As in 1934, the greatest incidence was among the poorest classes and in greater proportion among those who used well-water or city water, not on tap, but carried into the house.

The history of goitre in the prairie provinces, particularly at Edmonton, in no way resembles that of a deficiency disease. Rather it is that of an infection, severe at first, then gradually diminishing and disappearing completely for 50 years. The character of the recurrence suggests the introduction of a new strain.

### BRITISH COLUMBIA

What seems to be a notice of goitre in British Columbia is quite early, indeed. In 1824, Black<sup>72</sup> noted, apparently on the Finlay River:

"The men complain of numbness in their arms & their hands & wrists swelled & Galled by the Snow Water I suppose, moreover the White Inhabitants for I have not observed much of it amongst the Indians using the Water for a length of time are subject to the swelled Throat occasioned by some qualities in the Water which we cannot account for. The Earth & Stones in these Mountains as well as in Peace River in the Plains below are strongly impregnated with a kind of salts also petrifying waters, but as I suppose neither of these can be satisfactorily accounted for as the cause of these Gutturals, we can only attribute them to Snow Water melted in the mountains or some other essence or mixture in the Waters inherent to the Rocky Mounts."

I found no mention of goitre by the explorers and travellers who used the more southern passes and the Columbia and Fraser Rivers.

According to Keith,<sup>73</sup> goitre was common in humans and animals in the Pemberton valley in 1917. There were serious losses of young animals. One of the farmers sought help. According to Waller,<sup>74</sup> it was from him in 1917; according to Keith, it was from the Bureau of Animal Industry in Washington, who referred him to Marine in 1918. At any rate, he used iodine and his troubles were over.

Just why it should have been necessary to go so far for help is not clear. In 1916, the Department of Agriculture of the province had issued its Bulletin 67, "The Care and Feeding of Cattle". After mentioning that goitre was common in cattle and

\*Considerable attention is given to this situation because some of Keith's statements have been widely circulated by protagonists of the "iodine-lack" hypothesis.



humans in some districts of the province and that lime-water, salt and sulphur had all been useful in some cases, it recommended, apparently for humans, removal to another locality and application of an iodine ointment or of tincture of iodine. For cows, it prescribed 1.5 drams (5.8 g.) of potassium iodine daily, and for calves 20 grains (1.3 g.).

It is noteworthy that Bulletin 60, "Hog Raising in British Columbia", published in 1915, contained nothing about goitre or hairlessness in piglets. The first mention of this that I have found was in 1919 or 1920.<sup>75</sup>

Of humans, Keith<sup>73</sup> and McKechnie<sup>75</sup> both said that goitre was common in many districts of British Columbia. Of the Pemberton Valley in 1917, Keith wrote: "All the babies born in the district had goitre, and almost every woman coming into the valley would develop goitre in a few months or a year. Bachelors having no cows and using only condensed milk would show goitre within a few weeks' time, certainly a few months." A rather contradictory statement was given by Waller: "... infants born in the district rapidly develop goitre when given fresh cows' milk, though not when fed imported condensed milk." Waller quoted many other observations indicating the presence of an infection.

In 1922, when Keith visited the district, he "could not find a goitre in an animal or human being." However, in a later paper, Keith<sup>76</sup> wrote that a recent survey by school physicians showed that 80% of the children at Pemberton had goitres. He also related that "On more than one occasion a man suffering from goitre has gone to work at the Hatchery on the Birkenhead River, . . . and after residing there for some time has lost his goitre." The water there contained no iodine. Keith concluded: "It is probable that anyone residing at the Hatchery would consume a certain amount of salmon."

In that same paper, recent surveys by school physicians were said to have shown that 8% of the children at Vancouver and 14% of those at Nanaimo (on the coast of Vancouver Island) had goitres. Did not these children have fish and shell-fish?

Goitre in British Columbia appears to have been quite different from that in other parts of Canada. In no other province was there this great incidence among farm animals even after years of human goitre.

Goitre had been prevalent among humans in some parts of the Province of Quebec for many years and, on the Island of Montreal for more than 20 years before Springle<sup>27</sup> wrote: "In cattle, sheep, horses and dogs, it is not uncommon in all goitrous districts, and the young frequently succumb to it. Dr. Baker (D.V.S.) informs me, however, that in sheep and calves if they live for a little while the swelling may entirely disappear." I have found no other reference to goitre of any appreciable prevalence among animals in eastern Canada.

## SUMMARY

The history of goitre in Quebec, Ontario, the Prairie Provinces and British Columbia has been reviewed. It has been shown that there is abundant evidence that the Indians did not have goitre before the coming of Europeans and for many years thereafter. The incidence of goitre seems to have increased early in this century and to have changed its character from relatively benign simple goitre to cystic goitre to exophthalmic goitre or thyrotoxicosis without exophthalmos. Only at Edmonton, Alberta, in 1819, was cretinism a serious accompaniment and only in British Columbia was goitre in animals important. In no place and at no time does deaf-mutism appear to have been frequent.

It is submitted that the history of goitre in Canada, as in many other countries, is that of "an infection with varying strains in different regions and at different times".<sup>77-79</sup>

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## CASE REPORT

### ENTEROBIUS VERMICULARIS GRANULOMA IN THE INGUINAL CANAL\*

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TRUE granulomas caused by *Enterobius (Oxyuris) vermicularis* and their ova in and upon the internal genitalia and serosa of the pelvis and intestine of females are well documented.<sup>1, 2, 4, 7-10</sup> The lesion described here falls into this group. Because of its extraordinary location it is considered to be worthy of reporting.

B.M. (SJH-452-60), a 26-year-old married woman, complained of a bulging mass in the left inguinal region which had caused considerable discomfort and pain during her previous pregnancy. Physical examination, save for the presence of a reducible, left-sided inguinal hernia, was essentially negative. The patient underwent herniotomy during which a small mass was found at the tip of the hernial sac. The mass was firmly adherent to the external aspect of the peritoneum.

**Gross Examination:** The specimen consisted of an irregularly oval, brownish-grey, rubbery nodule measuring 1.8 x 1.0 x 0.5 cm. and was covered by a few fibrofatty tags. Bisection revealed a centrally located cavity surrounded by a thick band of homogeneous, hard, pale grey tissue. The cavity was filled with edematous, somewhat spongy, friable grey material.

**Microscopic Examination:** The mass had the configuration of a lymph node and its central part was occupied by necrotic tissue. This tissue contained a female *Enterobius vermicularis* and its ova, as well as polymorphonuclear leukocytes, macrophages and eosinophils. At the periphery there was a thick band of fibrous tissue infiltrated by lymphocytes, macrophages, a few eosinophils and an occasional small giant cell. The lymphocytes formed a few small lymphoid follicles; however, cortical and medullary sinuses as well as trabeculi could not be identified.

#### DISCUSSION

Initially the above-described lesion was thought to represent a granuloma due to *Enterobius vermicularis* of an external iliac lymph node, pushed into the inguinal canal by the hernial sac. Review of pertinent literature yielded two reports of *Enterobius vermicularis* granuloma occurring in lymph

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