

C. CHAN GUNN (1931 -)

Some readers may not appreciate that besides providing valuable care Brasnet and Jackson also performed basic observational research into the social conditions of their communities. Another G.P./family doctor to do so was 1988 University of British Columbia graduate Harvey Thommasen who researched the natural history of the Bella Coola Valley, home of the river which reaches the Pacific Ocean at Bella Coola, British Columbia.

'He'd captured and identified hundreds of aquatic insects, memorised sound tapes so that he could recognise birds by their songs, done clinical studies on Native medicinal plants and taken time out of his rounds to question elders about the way things had been.'¹⁸³

He provided the basic field notes for writer/fisherman Mark Hume to produce *River of the Angry Moon*, describing the passing of the seasons, the natives, the fishing and the near destruction of a beautiful river through our continuing greed and folly.¹⁸⁴

But another type of pain is the major problem that confronts patients and their physicians; the problem we saw earlier which concerned James Mackenzie, and it was another B.C. doctor, Dr. C. Chan Gunn, born in Malaysia in 1931 who researched pain during the last quarter of the 20th century and continues to do so into the 21st century.

In October 2001 Dr. Gunn kindly invited me to see his work. He impressed me immediately by his thorough examination of patients, by his consideration for them, and by the very difficult pain problems

he was asked to evaluate and help. Despite many long histories of pain and treatment including surgical procedures, he helped most patients significantly. His enthusiasm was infectious. He told me of his experiences and training and taught me his basic method.

He had studied Natural Sciences at Peterhouse, Cambridge University after the war in Malaysia when he and his Chinese family were fortunate to survive terrible hardships during the Japanese invasion of their country.

After clinical experience at University College Hospital in London and passing his examinations, he began two years of post graduate work, first in Epsom hospital, where he studied general surgery and orthopaedics. Next he studied paediatrics at Paddington Green Childrens' Hospital under Dr. Thomas Stapleton. It was there working with many malnourished children in the Paddington area that he showed in his first published paper how anaemic infants responded to treatment with ferrous fumarate, an iron preparation more easily taken by his small patients than ferrous sulphate.¹⁸⁵ He also wrote on cretinism.

At further hospital posts he spent extra time in medicine, obstetrics, gynaecology and ear, nose and throat. Working in non-teaching hospitals with less staff he had to perform much laboratory work and take x-rays, tasks he made use of later. Meanwhile he married Peggy Loke, an accomplished artist who was studying architecture in London. They had a son and daughter. In 1958 they left for Malaysia where he started a general practice in his own country. Just before leaving he happened to be given some samples of an antibiotic furodantin which were to prove most valuable.

In the early days of his own practice a wealthy patient, Mr. Ng consulted him for a second opinion. He had been undergoing hospital treatment for a serious kidney infection, diabetes, a grave leg ulcer, and had been advised to have his leg amputated. Gunn gave Mr. Ng the furodantin he had obtained in England and cleared up the kidney infection. The patient's diabetes and leg ulcer also improved under Gunn's care. The patient spread the news of his cure widely, helping Gunn develop a successful practice in which he also did much of his

own laboratory work, took his own x-rays and produced medication for his patients at little or no cost.

In 1966 he emigrated to Canada, briefly researching at the University of British Columbia. Next he joined the Workers' Compensation Board where he found the opportunity to study persisting pain.

Low back pain was and is a major problem among workers attending the Compensation Board. For example, in 1974 one third of all admissions were due to low back injuries.¹⁸⁶ Of these 86 percent were given the "working diagnosis" of low-back sprain. The remainder had fractures or prior back surgery.

Gunn found that some of these back sprain patients had tender points in some muscles, (known as motor points) which revealed abnormal electromyographic findings. Palpating carefully he discovered these points to be consistent anatomically. For example, he found that a small tender area in the upper outer quadrant of the buttock, previously attributed to "gluteal bursitis" was simply a tender motor point in the gluteal medius muscle.

The tender motor points were located in the myotomes corresponding to the probable segmental levels of spinal injury and root involvement. Examining fifty patients with low-back sprain, Gunn found 26 to have tender motor points. In contrast, only seven control patients revealed minor motor point tenderness following strenuous activity. Gunn noted that patients with low-back sprain and no tender motor points were disabled an average of 6.9 weeks, those with tender motor points 19.7 weeks, and those with nerve root involvement 25.7 weeks. The tender motor points were therefore of both diagnostic and prognostic importance.¹⁸⁶

Next, he turned his attention to "tennis elbow" and its possible connection with the cervical spine.¹⁸⁷ In a series of 37 men and 13 women patients referred to the WCB rehabilitation centre and who had received varying treatments to their elbows without benefit, he found tender motor points in the extensor muscles of the wrist and some abnormal electromyographic findings suggesting early nerve or nerve root damage. Applying physical treatment including traction and mobilisation to the neck rather than the elbow he obtained

satisfactory relief of elbow symptoms in 86 percent of patients after five weeks of therapy.¹⁸⁷

While examining his low back sprain patients Gunn had noted subtle abnormalities related to denervation, consisting of autonomic dysfunction, trophic changes, hypersensitivity and increased muscle tone. The changes were familiar to physiologists and to clinicians treating patients with peripheral nerve injuries, but not familiar to those examining patients with low back pain.¹⁸⁸ He noted anatomic dysfunction when patients undressed exposing their skin to cool air which led to developing "goose flesh" in the affected dermatome and sometimes mottling of the skin following constriction of small blood vessels. Also, he noted abnormal sweating.

Furthermore, skin and underlying subcutaneous tissue might become "boggy" or trophedematous. Pressing the blunt end of a matchstick into the skin Gunn demonstrated boggyness by the pitting of the skin. By careful palpation he also demonstrated increased sensitivity and muscle tone.¹⁸⁹

Meanwhile, he had studied traditional acupuncture but found it largely non-scientific. Nevertheless, some traditional acupuncture points corresponded to his tender motor points in specific muscles. Using acupuncture needles he needled the points he had discovered on clinical examination and found such technique effective in 29 male low back pain patients at the WCB compared with 27 "control" subjects.¹⁹⁰ Lewit also reported the beneficial effect of dry needling in myofascial pain.¹⁹¹

Next, Gunn came across the long neglected work of Cannon and Rosenblueth in their 1949 study The Supersensitivity of Denervated Structures.¹⁹² Walter Cannon was Professor of Physiology at Harvard University in the 1940's and had died prior to the publication of their work which curiously attracted little interest.

Cannon stated,¹⁹² "when in a series of efferent neurons a unit is destroyed, an increased irritability to chemical agents develops in the isolated structure or structures, the effects being maximal in the part directly denervated." Supersensitivity develops not only in striated muscle but also in other structures such as smooth muscle, sweat glands, autonomic ganglion cells, spinal neurons and even brain cells.

Gunn summarised Cannon's work and other related experiments in a 1980 review paper in *Spine*,¹⁹³ and later in his own practical text, *The Gunn Approach to the Treatment of Chronic Pain*.¹⁹⁴

He used the term neuropathy to describe dysfunction in the peripheral nervous system recognised by Cannon. Neuropathy causes increased muscle tone and muscle shortening which in turn causes a wide variety of pain syndromes by its relentless pull on various structures. Muscle shortening is the "key to myofascial pain of neuropathic origin."¹⁹⁵ Muscle shortening can be palpated asropy bands within muscle. Shortening in paraspinal muscles acting across an intervertebral disc may compress the disc and narrow the intervertebral foramina, irritating the nerve root and causing its dysfunction.

Having located the area of muscle shortening, Gunn then uses traditional acupuncture needles to penetrate that specific point, the motor point. When entering normal muscle the needle encounters minimal resistance, but on penetrating the affected site, the needle encounters marked resistance and is grasped by spasm in the muscle. The patient experiences a cramp-like sensation, sometimes quite severe, known to traditional acupuncturists as the DEQI phenomenon. Such sensation confirms the needle is placed correctly. The needle is then moved by small jabs, "pecking" the tissue thoroughly. The needle is then left in place and the spasm relaxes in about five minutes. Nearby sites are then treated similarly. Concurrent electrical stimulation may be used. The needle itself causes minute local tissue damage and release of the Platelet Derived Growth Factor which promotes mitosis and healing. The needle injury also causes an electrical current which promotes continuing relief of spasm. Frequently the needling also causes some relaxation in nearby muscles. Its prolonging effect makes the technique far superior to commonly used physiotherapeutic techniques such as TENS. Examining the patient later, an increased range of movement in the affected muscle groups can be demonstrated. Gunn terms his technique intramuscular stimulation or IMS.

IMS is remarkably safe compared to many other remedies. The fine point needle has no cutting edge. To use the technique a practitioner needs a thorough knowledge of anatomy and physiology

and adequate training which Dr. Gunn and his associates offer at his Institute for the Study and Treatment of Pain at Vancouver, British Columbia, Canada. Physicians and physiotherapists are especially suited for his training programs.

Local recognition has come slowly to Dr. Gunn. Some have confused his work with acupuncture. Nevertheless in 1983 he was invited to join the University of Washington Multidisciplinary Pain Centre as a consultant.¹⁹⁶ Dr. Patrick Wall, in his foreword to Dr. Gunn's text,¹⁹⁷ pointed out that it was "in the best tradition of classical medicine," that it was in no way "complementary" or "alternative medicine," but was based upon classic anatomy, physiology and pathology. Wall noted that his work "requires a meticulous hands-on clinical examination of the individual patient... a lost art in favour of supposedly effective high-tech methods.... It requires subtle sensitive empirical treatment of the individual patient."

"It is true that he characterises the precise nature of the disorders in terms of neuropathies and compressions, but these are hypotheses which are permissible because they are testable by accepted methods of investigation. Almost all traditional medical diagnoses are based upon hypotheses which have not yet been fully tested and proven."¹⁹⁷

Dr. Gunn is invited to demonstrate his work in many countries. He has attracted the attention of many high quality practitioners from North America and overseas, some of whom I have had the pleasure of meeting.

He was awarded a rare Honorary Fellowship at Peterhouse in Cambridge, and in 2002 received the Order of Canada for his services to medicine and to the community. He and his wife Peggy are strong supporters of the arts and Dr. Gunn was founding director of the Canadian Society for Asian Art. Truly, he has built a bridge between East and West.

Recently, Dr. Gunn and his associates treated me for a long standing lumbar disc problem. I found the treatment while not comfortable to be most effective. I wish I had learned from him earlier.

Dr. Gunn has accomplished a remarkable volume of original work. Until the 1970s, medical diagnosis generally considered pain to result from tissue injury. However, Dr. Gunn's clinical research showed

that pain can occur without injury when there is abnormal function of the nervous system. His innovative concept of "neuropathic pain" has led to significant changes in the understanding and treatment of chronic pain.

He has completed some 30 or more scientific articles and books, and has clearly demonstrated that a family physician today can through perseverance still contribute significantly to medical research just as James Mackenzie did a century ago. Contemporary family doctors should test Gunn's work for themselves and explore research opportunities in their own practices. If you have not heard of Dr. Chan Gunn, here is a good example of little known medical research by a family doctor.

Listening to these tales from the past broadens our understanding of medicine.

We need research and we need heroes.