MANITOBA

LAW REFORM COMMISSION
COMMISSION DE RÉFORME DU DROIT

REPORT

ON

A STATUTORY DEFINITION OF DEATH

Report No. 16

May 6, 1974

The Manitoba Law Reform Commission was established by *"The Law Reform Commission Act"* in 1970 and began functioning in 1971.

The Commissioners are:

Francis C. Muldoon, Q.C. *Chairman*

R. Dale Gibson

C. Myrna Bowman

Robert G. Smethurst, Q.C.

Val Werier

Sybil Shack

Kenneth R. Hanly

Professor Paul Thomas is Chief Research Officer to the Commission. The Secretary of the Commission is Miss Suzanne Pelletier.

The Commission offices are located at 331 Law Courts Building, Winnipeg, Manitoba.

TABLE OF CONTENTS

The subject of this Report is a recommended statutory definition of death, for all medical and legal purposes, in Manitoba.

The Commission gratefully acknowledges the time and effort expended by Dr. Michael G. Saunders who has been our consultant and project director in the preparation of this Report. Dr. Saunders is the Director of the Electroencephalograph Department of the Health Sciences Centre in Winnipeg. He is, moreover, a past President of the Manitoba Medico-Legal Society and it was through the activities of that organization and the papers presented at its meeting that the subject of this Report first came to the Commission's attention. Dr. Saunders is an author in his own right on this subject.

Prior to this technological era in which we live the concept of death has been simple and its fact has been simple, and abrupt. When the body could no longer spontaneously infuse oxygen, death followed surely and swiftly; when the heart ceased spontaneously to circulate oxygenated blood, death followed surely and swiftly. In the absence of perceived respiration, pulse and body heat, the physician, or any other reasonable person, could conscientiously pronounce the body to be dead. Needless to say the physical phenomena of life and death have not changed. Where the sophisticated machines of medical technology are not available, the foregoing propositions stand valid.

What has changed is that the machines are more and more available, and ever newer machines are more and more sophisticated. With the aid of such new machines and perceptual devices medical scientists have perceived and confirmed that death is a sequential process, and not the simultaneously abrupt termination of respiration and circulation. Complex, major surgery can today be performed with the aid of machines which artificially provide oxygen to the whole physical system while some vital part of the anatomy is undergoing surgical repairs. When the repairs are completed the artificial support devices can then be withdrawn and the patient's life will again continue to be supported by spontaneous respiration and circulation. In such circumstances, it is not true to assert that the patient died, although, if someone or something had interfered with or stopped the machines the patient would have died. But the patient in question cannot be considered to have died so long as the brain continues to function and to maintain, or to be capable of maintaining, the spontaneous heartbeat and respiration, and while the body retains the potential capability of resuming these vital functions.

The media seem fascinated with events described variously as: a return from 'death'; or a person who had 'died' being almost miraculously returned to life by the swift, radical and heroic intervention of an alert physician. But a person is not necessarily dead just because that person's heart has stopped beating. Spontaneous heartbeat can sometimes be restored by prompt and effective massage or by electric defibrillation: assisted, but quite effective heartbeat can also be restored and sustained by means of an electric pacemaker. The fascination of the media is probably justified in light of the existing legal definition of death. Thus in those simple and abrupt terms

mentioned above, death may be stated to be the extinction of life, indicated by the absence of heartbeat and respiration. In fact, where those miraculous revivals were performed, death must have been very close and without skilful intervention it would have been inevitable: but it did not actually occur. Death being final, it does not occur while life, however tenuous, remains potential. Death, being final, is a state from which resuscitation of the person is impossible by any known means. In close analysis, the foregoing assertions, while helpful in imparting our idea, are only semantic constructions.

At the risk of gratuitous repetition, the narrow limitations of the historic concept of death should be stated in another way. Traditionally, death has been defined by the cessation of the heartbeat and/or respiration. That event has been so defined because, when the circulation of blood stops for a period of longer than six to eight minutes, irreversible cessation of brain function inevitably occurs. It cannot be said that cellular death of the whole body occurs immediately after the heartbeat stops, because viable tissue cultures of organs can be made for a considerable time after the circulation stops, and such isolated cells can be kept alive for a long period of time. This does not, however, constitute survival of the human being. We think it can be safely asserted and demonstrated that the irreversible cessation of brain function means the death of the individual. Thus, death can and should be pronounced if it be certain that brain function cessation is irreversible, even if heartbeat, circulation and respiration continue under artificial means.

SIGNIFICANT STATUTORY PROVISIONS

Death and the time of its occurrence are treated in the Statutes of Manitoba as being significant events, but are nowhere defined. Some examples will suffice for the purposes of this Report. In *"The Fatal Accidents Act"*, R.S.M. 1970, c. F50, it is provided:

Definitions.

2 In this Act,

(b) "deceased" means a person whose death has been caused as mentioned in subsection (1) of section 3;

Liability for damages caused by death.

3(1) Where the death of a person is caused by wrongful act, neglect, or default, and the act, neglect, or default is such as would, if death had not ensued, have entitled the deceased to maintain an action and recover damages in respect thereof, the person who would have been liable, if death had not ensued, is liable for damages, notwithstanding the death of the deceased, even if the death was caused in circumstances amounting in law to culpable homicide.

When cause of action arises.

3(2) Subject to subsection (5), the liability for damages under this section arises upon the death of the deceased.

Prior death of tortfeasor.

3(5) If, at the time of the death of the deceased, the tortfeasor is himself dead, the liability arising under this Act shall be conclusively deemed to have been subsisting against the tortfeasor before his death.

Subsequent death of tortfeasor.

3(6) Where the tortfeasor dies at the same time as the deceased, or in circumstances rendering it uncertain which of them survived the other, or after the death of the deceased, the liability and cause of action arising under this Act shall be conclusively deemed to lie upon, and continue against, the executor or administrator of the tortfeasor as if the executor or administrator of the tortfeasor were the tortfeasor in life.

S.M., 1966-67, c. 17, s. 3.

Bringing of action where no executor or administrator.

6(1) Where there is no executor or administrator of the estate of the deceased, or there being an executor or administrator no action is brought by him within six months after the death of the deceased, an action may be brought by, and in the name or names of, any one or more of the persons for whose benefit the action would have been brought if it had been brought by the executor or administrator.

Limitation on bringing of action.

8(4) Except where it is expressly declared in another Act that it operates notwithstanding this Act, an action, including an action to which subsection (5) or (6) of section 3 applies, may be brought under this Act within one year after the death of the deceased but no such action shall be brought thereafter.

Death and the time and manner of its occurrence are dealt with in *"The Fatality Inquiries Act"*, C.C.S.M., c. F52, thus in part:

Investigation of sudden deaths.

6(1) Where a medical examiner is informed that there is lying within the territory to which he is appointed the dead body of any person, and it appears that

(a) there is reasonable cause to suspect that the person died by violence, undue means, or culpable negligence; or
(b) the person died in a place or under circumstances requiring an inquest under any statute; or
(c) the cause of death is undetermined; or
(d) the person died in jail or prison;

he shall forthwith take charge of the body, inform the police, and make diligent inquiry respecting the cause and manner of the death of the person.

Certain doctors not to take part in post-mortem.

8(2) Where a medical examiner has reason to believe that the death was directly or indirectly caused by the improper or negligent treatment of a duly qualified medical practitioner or other person, that duly qualified medical practitioner or other person shall not be allowed to perform or assist at the post-mortem examination.

Investigation in case of injury likely to cause death.

12 Where any person is injured in an accident and death is deemed likely to ensue, a medical examiner may immediately proceed to investigate the matter and obtain such statements from witnesses and the injured person himself, if possible, as the medical examiner may consider necessary or advisable.

S.M., 1970, c. 57, s. 12.

Sudden death from natural causes.

13 In the case of a sudden death from apparently natural causes, the medical examiner shall act on the request of the minister or a police constable or police officer.

S.M., 1970, c. 57, s. 13.

Duties of magistrate at inquest.

21(1) The magistrate by whom an inquest is held, after hearing the testimony adduced at the inquest, shall

(a) make a written report setting forth when, where and by what means the person deceased came to his death, his name, if known, and all material circumstances attending the death;

Removal of body without order.

24(1) In case of sudden death from any cause, no person shall remove, or cause to be removed, or prepare for burial, the body of the deceased person from the place where it is at the time of death until a medical examiner or police constable or police officer has given his order permitting the removal, or the preparation for burial, or bury it, or cause it to be buried, until a medical examiner has given his order permitting the burial.

In an undetermined, but probably limited, number of instances, the time of death could be crucial in terms of *"The Succession Duty Act (Manitoba)"*, C.C.S.M., c. S215:

Property of the deceased.

3 For the purposes of this Act, the aggregate net value of the property of the deceased shall include the value of

(c) property disposed of by the deceased under a disposition operating or purporting to operate as an immediate gift inter vivos, whether by delivery, transfer, declaration of trust or otherwise, made within three years prior to his death to the extent of the value of that property at the time of the disposition;

(d) property disposed of by the deceased under a disposition whenever made, of which actual and bona fide possession and enjoyment was not, at least three years prior to the death of the deceased,

(i) assumed by the person to whom the disposition was made or by a trustee or agent for that person, and

(ii) thereafter retained to the entire exclusion of the deceased and to the entire exclusion of any benefit to him, whether by contract or otherwise;

(g) property disposed of by the deceased under any disposition made within three years prior to his death for partial consideration in money or money's worth paid or agreed to be paid to him, to the extent that the value of the property as of the date of the disposition exceeds the amount of the consideration so paid or agreed to be paid;

In the case of apparently simultaneous deaths the question of who predeceased whom is settled, and without the benefit of any definition of death, in *"The Survivorship Act"*, R.S.M. 1970, c. S250:

General rule.

2(1) Where two or more persons die at the same time or in circumstances rendering it uncertain which of them survived the other or others, the deaths are, subject to subsections (2) and (3), presumed to have occurred in the order of seniority, and accordingly the younger is deemed to have survived the older.

Substitute gifts.

2(2) Where a statute or an instrument contains a provision for the disposition of property operative if a person designated in the statute or instrument,

(a) dies before another person; or
(b) dies at the same time as another person; or
(c) dies in circumstances rendering it uncertain which of them survived the other;

and the designated person dies at the same time as the other person or in circumstances rendering it uncertain which of them survived the other, then, for the purpose of that disposition, the case for which the statute or instrument provides is deemed to have occurred.

Substitute executors.

2(3) Where a will contains a provision for a substitute personal representative operative if an executor designated in the will,

(a) dies before the testator; or
(b) dies at the same time as the testator; or
(c) dies in circumstances rendering it uncertain which of them survived the other;

and the designated executor dies at the same time as the testator or in circumstances rendering it uncertain which of them survived the other, then, for the purpose of probate the case for which the will provides is deemed to have occurred.

S.M., 1962, c. 73, s. 2.

Finally, *"The Vital Statistics Act"*, R.S.M. 1970, c. V60, has some significant provisions:

2 In this Act

(t) "stillbirth" means the complete expulsion or extraction from its mother after at least twenty weeks' pregnancy, of a product of conception in which, after such expulsion or extraction, there is no breathing, beating of the heart, pulsation of the umbilical cord, or unmistakable movement of voluntary muscle.

R.S.M., c. 283, s. 2; am. S.M., 1959 (2nd Sess.), c. 68, ss. 1, 2; S.M., 1961 (1st. Sess.), c. 21, s. 26.

Certification by medical practitioner or coroner.

14(3) The legally qualified medical practitioner who was last in attendance during the last illness of the deceased, or the coroner who conducts an inquest on the body or an inquiry into the circumstances of the death, shall forthwith after the death, inquest, or inquiry, as the case may be, complete and sign a medical certificate included in the prescribed form, stating therein the cause of death according to the International List of Causes of Death, as last revised by the International Commission assembled for that purpose, and shall forthwith cause the medical certificate to be delivered to the funeral director.

Death without medical attendance.

14(4) Where a death occurs without medical attendance, or where the legally qualified medical practitioner mentioned in subsection (3) is not available to complete the medical certificate, and where there is no reason to believe that the death was the result of any of the circumstances set forth in subsection (6), the funeral director shall forthwith notify a coroner having jurisdiction or the local medical health officer, or a legally qualified medical practitioner designated by the coroner or by the medical health officer, who shall thereupon inquire into the facts and shall complete the medical certificate in accordance with subsection (3).

Am. S.M. 1972, c. 81, s. 31.

Certificate by division registrar.

14(5) Where a division registrar is satisfied that there was no coroner, no local medical health officer, and no legally qualified medical practitioner within a reasonable distance from the place where a death has occurred, and that it is not reasonably practicable to have the medical certificate completed as provided in subsection (4), the division registrar may, in lieu of the medical certificate, prepare and sign a certificate prepared from the statements of relatives of the deceased or of other persons having adequate knowledge of the facts.

The foregoing are but examples of how some of our statutes treat, with seeming assurance, an event which has no precise statutory definition. The word "death" is expressed over 750 times in Manitoba statutes.

THE NEED FOR A DEFINITION

Whether the *law* defines death or not, it nevertheless treats death as a matter of *fact*. The law does not say *when* that fact occurs; any legal dictionaries give only a basic simplistic indication of what that fact really is. Stroud's Judicial Dictionary of Words and Phrases[1] approaches this subject only somewhat distantly under DEATH in two of six items:

> (1) Where 'death' is mentioned in a statute, the word generally refers to the ceasing to live of a natural person; it will require a strong context to make the word include the dissolution of an artificial entity, e.g. a partnership or a company . . .
>
> (5) "On the death of" A means "as soon as that event arrives. Here it is to be at some time 'AFTER the death'. That indicates no period of time. It is to be 'after' a particular death, not on it" (per Lord Adam, *Gollan's Trustees v. Booth*, 38 Sc.L.R. 764 . . .)

Black's Law Dictionary[2] has:

> Death: The cessation of life; the ceasing to exist; defined by physicians as a total stoppage of the circulation of the blood, and cessation of the animal and vital functions consequent thereon such as respiration, pulsation, etc.

---

1 Vol. 2, pp. 692-3, 4th ed. (1972), Sweet & Maxwell, London.

2 P. 488, 4th ed., (1951) West Publishing Co., St. Paul, Minnesota.

(Note: This is natural death compare — 'violent death', 'civil death'.)

Natural death: A death which occurs by the unassisted operation of natural causes as distinguished not only from civil death but also from violent death.

Wharton's Law Lexicon[3] contains "death", but it is merely a reference to English statutes regarding registration of death, action brought for damages arising from death by accident, effect of death after commencement of an action, etc.

Earl Jowitt, Dictionary of English Law[4] recites

Death: Besides natural death, or death in deed, *mors naturalis*, there was formerly what is known as civil death, or death in law, *mors civilis*.

(There follows a description of civil death and the effect of death on various forms of action.)

Ballantine's Law Dictionary[5] states:

Death: The end of life; the state of being dead.

The law, as can be seen from the above sampling, is singularly oblivious to the real, observable sequence of events — or continuum — which begins with grave injury or illness and sometimes ends with undeniable death. It seems not to have kept pace with technology.

Some U.S. jurisdictions, notably Kansas, Maryland and Virginia, have perceived the need to enact a statutory definition of death. The Virginia provision, which is the most recent of the three, was enacted at the 1973 Session of the Virginia General Assembly to become effective on June 1st, 1973.

32-364.3:1 as follows:

§ 32-364.3:1. A person shall be medically and legally dead if, (a) in the opinion of a physician duly authorized to practice medicine in this State, based on the ordinary standards of medical practice, there is the absence of spontaneous respiratory and spontaneous cardiac functions and, because of the disease or condition which directly or indirectly caused these functions to cease, or because of the passage of time since these functions ceased, attempts at resuscitation would not, in the opinion of such physician, be successful in restoring spontaneous life-sustaining functions, and, in such event, death shall be deemed to have occurred at the time these functions ceased; or (b) in the opinion

---

3 P. 301, 4th ed., (1938), Sweet & Maxwell, London.

4 Vol. 1, pp. 575-6 (1959),Sweet & Maxwell, London.

5 P. 309, 3rd ed., Lawyers' Co-op. Publishing Company.

of a consulting physician, who shall be duly licensed and a specialist in the field of neurology, neurosurgery, or electroencephalography, when based on the ordinary standards of medical practice, there is the absence of spontaneous brain functions and spontaneous respiratory functions and, in the opinion of the attending physician and such consulting physician, based on the ordinary standards of medical practice and considering the absence of the aforesaid spontaneous brain functions and spontaneous respiratory functions and the patient's medical record, further attempts at resuscitation or continued supportive maintenance would not be successful in restoring such spontaneous functions, and, in such event, death shall be deemed to have occurred at the time when these conditions first coincide. Death, as defined in subsection (b) hereof, shall be pronounced by the attending physician and recorded in the patient's medical record and attested by the aforesaid consulting physician.

Notwithstanding any statutory or common law to the contrary, either of these alternative definitions of death may be utilized for all purposes in the Commonwealth, including the trial of civil and criminal cases.

A great body of medical and legal comment, both *pro* and *con* has been generated by such statutory provisions. Much, if not all, of it is identified in the bibliography which appears as Appendix "A" to this Report.

The need for a definition we perceive to be fourfold:

(1) Greater precision in determining what is meant by death;

(2) Greater precision in recognizing when death occurs;

(3) Protection of the lives, and right to life, of patients; and

(4) Avoidance of the undue prolongation of engagement of hospital personnel and equipment in the maintenance of heartbeat and respiration after death has occurred.

1. As stated by Dr. M.G. Saunders in his article entitled *Medico-Legal Aspects of Brain Death*[6]:

> Teaching and experience, that the absence of cardiac and respiratory function is equivalent to death, is so ingrained that the relation has not been questioned in the past. However, on considering the state of being alive as opposed to being dead, it is difficult to assign a living state to a being who has complete absence of brain function. Conversely, it would be impossible to assign death to a being who, by some means kept brain function intact without respiration or heart beat. Such a situation can now occur with artificial man-made blood oxygenators and pumps.

---

6 Handbook of Electroencephalography and Clinical Neurophysiology, 1974, Vol. XII, ch. 14, ed. Harner R.N. and Nacquet R., Elsevier Scientific Publishing Co., Amsterdam, (in press).

> From the above arguments it is obvious that before considering persons dead they must first show no evidence of brain function and then no evidence of cardiac and respiratory function. Although the prerequisite of brain death or irreversible coma as the initial indicator of death is so obvious as to be forgotten, it is of paramount importance. The three signs of death are: irreversible coma, irreversible cessation of heart beat and irreversible cessation of respiration. The cessation of these will lead to coma and brain death but all three must be present to permit legal certification of death. Modern methods of artificially sustaining heart beat and respiration suggest that brain death is, in fact, the primary indictor of death.

That primary indicator is, we think, the significant element in determination of the fact of death.

2. Given the significant element, greater precision in determining when death occurs is possible wherever sophisticated electro-mechanical sensors are available. Dr. Saunders propounds the following:[7]

> In profound shock respiration may be so shallow as to be almost unnoticeable and blood pressure so low that the pulse is not palpable. Conventional clinical observations in such cases suggest the presence of death. However, if EKG activity is demonstrable, there is no cessation of heart beat — the patient is not dead. The EEG activity has been shown experimentally by Berger (Gloor 1969)[8] to continue briefly after cessation of heart beat. Brain death is not necessarily present at a time when conventionally recognized death has occurred.
>
> Death is not definable as a state of life suddenly changing to death but is a continuum. The difficulty of analysis, lies in deciding at what point in the continuum is life, or being, or existence, no longer demonstrable.

It is further noted by Dr. Saunders[9] that the significant event in the continuum of death is the final cessation of spontaneous brain function, notwithstanding the maintenance of heartbeat, respiration and spinal reflexes of the muscles.

> Man, following a variety of catastrophic insults to the brain can now be artificially maintained in a state of irreversible coma. In such cases there is complete absence of self-initiated movement, of brain reflexes, of respiration and all other vegetative control. The heart beats in a totally inert body and the continuance of heart

---

7 *Ibid.*

8 Gloor, P., *Hans Berger on the electroencephalogram of man,* Suppl. 28 Electroenceph. clin. Neuorphysical, Elsevier Publishing Co., Amsterdam, 1969, p. 350.

9 Saunders, M.G., *op. cit.*

beat is due only to maintenance of blood oxygenation and pressure by totally artificial means. Removal of such artificial support causes cessation of heart beat in minutes. The brain itself may be liquefied (Kraemer 1963)[10] or may show no clear pathological changes (Walker 1972).[11] In many patients spinal reflexes may appear (Ivan 1972)[12] but there is no other reactivity. Such patients can have the heart beat maintained for days after the catastrophic loss of brain function (Jenne and Plum 1972).[13] Such patients are in the continuum of death described above and the artificiality of fulfilling the legal requirement of stating the time of death becomes apparent.

The legal requirement of stating the time of death, expressed above, refers to the time at cessation of both heartbeat and respiration has occurred. A clinically definable syndrome of brain death appears to be acceptable to physicians, not only in Manitoba but throughout the world. Those Manitoba physicians who answered our invitation to comment, which appears as Appendix "B" to this Report, evinced no difficulty with, or criticism of, the concept of "cessation of all . . . brain function".

The syndrome is detected by standard clinical procedures, and laboratory tests are employed to scrutinize clinical observations. This process, we are informed, involves no deviations from the recognized practices of medicine. Needless to say, the corroborative value of electro-mechanical devices such as the electroencephalograph and any refined successors of today's machines, must be determined by the exercise of considerable judgment. For example the massive overdosage of cerebral depressants can produce temporary electro-cerebral silence (ECS) and either an extended recording or a second recording should be performed within the 24 hour period when the clinical diagnosis of brain death has been established. Technical and clinical precautions will always have to be observed lest undue or erroneous reliance be placed on machine techniques which are fundamentally laboratory procedures. However, given the feasibility of the diagnosis of brain death, the nature and extent of those precautions are not the burden of this Report. The desirable greater precision in determining when death occurs resides in the tested and corroborated diagnosis of brain death. The time at which brain death occurs is that point in the continuum at which the death of the individual can be safely pronounced.

---

10 Kraemer, W., *From reanimation to deanimation,* Act. Neurol. Scand., 1963, 39:139-153.

11 Walker, A.E., *Verbal Report on N.I.H. project on brain death to Am. Neurol. Assoc. sub-committee,* Chicago, 1972.

12 Ivan, L., *Spinal Reflexes in Cerebral Death.* Paper presented at 7th Canadian Congress of Neurological Sciences, Banff, Alberta, 1972.

13 Jenne, H.B. & Plum, F., *Persistent Vegetative State of the Brain,* Lancet, 1972, 1:734-737.

3. The concept of death being 'safely pronounced' relates to the patient's life and right to be secured against premature deprivation of life. It must be emphasized that the definition of death which we are propounding in this Report accords legal precision to the fact of dying: it protects the individual from killing, euthanasia or death-dealing human experimentation, which remain as contraventions of the *Criminal Code*. Indeed, the definition supports the principle, to which we are much attracted, enacted by the Quebec Legislature as of December 1st, 1971 upon the recommendation of the Civil Code Revision Office. The statement of principle appears as part of a more extensive amendment of the Civil Code, thus:

> Art. 18
>
> Every human being possesses juridical personality.
>
> Whether citizen or alien, he has the full enjoyment of civil rights, except as otherwise expressly provided by law.
>
> Art. 19
>
> The human person is inviolable.
>
> No one may cause harm to the person of another without his consent or without being authorized by law to do so.

Although not specifically codified, these principles reside in the common law, as indeed, in the law of all civilized communities. It can be observed however that sometimes the practices have not lived up to the principles. Therefore our aim is to propound, on principle, a fair and accurate definition of death which will fairly and safely describe those persons who do actually die, and which will not admit of the molestation of those who are not quite dead. Indeed, in proposing a precise statutory definition of death, we aim to dilute, if not utterly eliminate all extraneous pressures on those who have the care of gravely ill patients — pressures to "pull the plug" for whatever reason or desire on the part of others.

In stressing the importance of 'brain death' as opposed to mere 'cerebral death', and the importance of basing a legal definition on principle rather than today's technology, Dr. Saunders asserts:[14]

> The greatest difficulty in producing general wording for definition of death is to avoid terms that might include patients with intact brain function, who are quadriplegic and require continual assisted respiration. Similarly, terms that might include severe mental defectives, who have minimal brain function, who require continual forced feeding but have self-support of respiration and other vital functions must be carefully avoided. Unless the wording clearly cannot include such individuals, the frightening

---

14 Saunders, M.G., *op. cit.*

possibility of prematurely terminating their existence medically or legally is always present. Similarly use of terms that relate specifically to types of technical devices must be avoided since such devices are continually changed and improved. The wording must be based on principles and reasoning not on specific points.

A living person, while life endures, is a vessel of civil and human rights, not the least of which is the right to life itself. In identifying the time of death as the occurrence of brain death we mean to avoid the temptation of killing one patient to provide organs for another. It is no part of our proposal to permit anyone to act upon the premise that this patient is 'as good as dead, anyway' by removing organs, even if those organs should be shipped aboard the next flight out of Manitoba to the place where they are expected. In our view, if that sort of change in the law were to be effected it would involve a new definition of homicide and could be enacted only with a clear public mandate by the appropriate legislative body. It is clear that as medical science and technology protract the continuum of dying, opposing pressures are developed which can only be resolved by a definition of what death is and when it occurs in that extended continuum. Those who are engaged in the laudable work of organ transplantation need for success 'fresh', viable tissues; those who are engaged in the care and treatment of the sick and injured bend their efforts to the preservation of human life. The precision and reality of our proposed definition would safeguard and reassure those who are admitted to hospital as gravely ill or injured patients.

4. Finally, our fourth perception of the need for a crisp and precise definition of death considers the social and medical evil of the undue prolongation of heartbeat and respiration in a human body — dead — but not so pronounced. As mentioned previously, the technological ability to protract the process of dying, which is done to discover some means of effecting the particular patient's recovery, generates pressures which did not exist in previous times. Just as there exist pressures to remove useful organs while still 'fresh' for transplantation, so also there exist pressures to keep functioning whatever of the patient's systems and organs can be kept functioning.

This latter approach is no less laudable than the desire to provide useful organs for someone else who might benefit thereby. It is founded on the respect for life and the invincible reluctance to terminate human life by human decision. The recently reported case of the lady in the Soviet Union who was comatose for 21 years, *and who recovered*, is one of those instances which make treating physicians and surgeons reluctant to pronounce *their* patients dead unless and until there be virtually total failure of all systems and general tissue deterioration. That determined caution is certainly edifying and provides patients much confidence in their doctors.

But, the other side of the question must be canvassed. Patients in a state of brain death produce much mental trauma to their families, cost enormous sums for care, occupy beds and equipment which could be used for other living patients, and make excessive physical and psychological demands on all medical staff. Dr. Saunders expresses the matter thusly:[15]

> The increasing ability to sustain life or to keep a functionally dead body with the heart beating for weeks will produce more precise legal controversy relating the various Statutes of Limitations to the existence of death. Definitions of death become as important in these areas as in the medical and economic realm where futile intense care is maintained on a non-functional body or where it is necessary to remove organs for transplant without fear of legal action being taken.

Clearly the variations observable from hospital to hospital and from patient to patient in determining the fact of death could be narrowed and the community at large could be benefitted by a precise medico-legal definition of the reality and occurrence of death.

THE NEED FOR A DEFINITION IN ADJUDICATIONS

The literature on this subject is replete with instances in which a legal definition of death would have been of considerable assistance to courts. Two examples will suffice for the purpose of this Report. In a series of articles entitled "Reflections On The New Biology" two Americans, David Sanders, M.D. and Jesse Dukeminier, LL.B. described[16] the following English case:

> The problem of determining the time of death when a patient's heart and lungs are kept going by a respirator was dramatically illustrated by a recent British case. A young man by name of Potter received four fractures of the skull and severe brain damage in a brawl. He was brought to the hospital, where doctors said there was no hope for him. Fourteen hours later he stopped breathing. Artificial respiration was begun; consent was sought from Mrs. Potter to remove a kidney for transplantation to another man. She consented. After 24 hours of artificial respiration a kidney was taken from Potter's body. The respirator was then turned off and there was no spontaneous breathing or circulation. An inquest was held to determine when death had occurred and whether the physicians were guilty of any offense in turning off the respirator. Though no action was taken against the physicians, they have been criticized for taking an organ before the body was positively pronounced dead.

---

15 *Ibid.*

16 *Medical Advance and Legal Lag* (1967-68) 15 U.C.L.A. Law Rev. p. 357 at 408.

A subsequent comment on the case of Potter's death by Brian Hogan, LL.B. of the University of Leeds, and editor of the Criminal Law Review, gave these insights[17] using X for the deceased, Potter:

> In the ordinary course of events (had the course of events been ordinary) X's assailant would have been charged with murder or manslaughter, and the court would have been faced with one of the nicest problems since Ashwell appropriated the sovereign in 1883. As legal problems go this could have been in the Gordian Knot category. The D.P.P.,[18] faced with having to advise on this, went one better than Alexander and simply snipped through the rope below the knot: X was charged with common assault. Thus was X's assailant spared his just deserts, the doctors their embarrassment, and the lawyers a field day.

A similar case occurred in Manitoba in 1970. The deceased, one Robert Garrioch, a Winnipeg resident, was clubbed on the head in the early hours of Sunday, August 9th, 1970. He had been struck in a front street neighbourhood altercation and he unsteadily made his own way back home. The following day was spent at home by him, but on Monday, August 10th, 1970, he lost consciousness and was taken to the Winnipeg General Hospital and admitted to a medical ward. His breathing stopped and he was transferred to intensive care, with breathing supported and maintained by a respirator. The diagnosis was pneumococcal meningitis and he was treated for this. Under close and intensive observation it was noted that the treatment was not succeeding. Tests were performed on August 14th and 15th. On both of the latter dates the respirator was turned off for 3 minutes on each occasion and no spontaneous breathing was observed. The electroencephalography procedures elicited only electro-cerebral silence. Considering the few positive spinal reflexes, the body temperature, the ECS and other neurological tests, three doctors pronounced Robert Garrioch dead on August 15th, 1970. The same day, with respiration still artificially maintained, both kidneys were removed, with the consent of the deceased's wife, for transplantation in recipients in eastern Canada. The pathologist found the deceased's brain in a state of liquifaction, which he described as "appalling", and estimated that brain death had probably occurred between 2 and 4 days prior to the pronouncement of death.

In this case, Garrioch's assailant was charged with non-capital murder and was tried at Winnipeg in November 1970,[19] before Mr. Justice Roy J. Matas and a jury. Counsel for the accused, noting that the deceased's respiratory system and cardio-vascular system were still functioning on August 15th, although admittedly with mechanical aid, urged *inter alia* that: there are cases of people who are comatose for months and no one says to put them to death; that removal of both kidneys, if not treated, would cause death; and that the Crown had not proved its case beyond a reasonable doubt.

---

17 [1972] Crim. L.R. 80.

18 Director of Public Prosecutions.

19 *R. v. Page* (unreported)

It is worth examining a short exerpt from the transcript of Mr. Justice Matas' address to the jury on these points. He said:

> I have only referred to the medical evidence in brief. You will consider all of it, as in the case of the other evidence, on all matters before you. It is for you to say if you are satisfied beyond a reasonable doubt that it was not the removal of the kidneys which caused Garrioch's death. If you are satisfied beyond a reasonable doubt that the cause of death was meningitis and that the meningitis was caused by the injury of August 9th, either directly or indirectly, or that the injury accelerated or contributed to the death of Garrioch, there is a killing which constitutes culpable homicide, murder or manslaughter — but subject to remarks I will be making shortly on self-defence and provocation. To sum up on this point, if you are not satisfied beyond a reasonable doubt that Robert Garrioch died as a result of injury resulting from an assault committed on August 9th, 1970, by the accused, you will acquit. If you are satisfied beyond a reasonable doubt that Garrioch did die as a result of that injury you will go on to consider self-defence and the defence of provocation.

The jury, after deliberation, convicted the accused of manslaughter. Juries do not give, and are not required to give, reasons for their verdicts, and because there was no appeal, the case of *Regina v. Page* is unreported and has generated no jurisprudence.

Thus, both courts and hospital personnel are left to cope with the competing pressures of early pronouncement of death versus undue prolongation of artificially sustained respiration and heart beat, without a precise medico-legal definition of death and its occurrence.

RESPONSES TO THE PROPOSAL

We sought responses to our proposed statutory definition of death from all those who are listed in Appendix "C" to this Report. In many instances we made preliminary enquiries as to the identity of the person to whom we were to forward our invitation to respond, and the result of those enquiries was that, in some instances, the nominal "head" of a particular organization was not the addressee. We are particularly grateful to Mr. Graham D. Walker, Secretary of the Nova Scotia Law Reform Advisory Commission, who produced and circulated an accurate synopsis of Appendix "B" to members of the Barristers Society and of the Medical Society of Nova Scotia.

In Appendix "D" to this Report we have identified all those who responded to our invitation with comments. It would make this Report too voluminous to repeat all of the comments and it would be misleadingly simplistic to purport to identify graphically the supporters and dissenters in regard to the proposal. In some instances support and dissent were qualified.

With great respect for their contrary views, it appears to the Commission that the opponents of our simple definition have mentally substituted for it more complex concepts which they have then proceeded, quite rightly, to demolish.

Some typical adverse comments should be recorded. An eminent surgeon wrote to us as follows:

> Your proposed change regarding definition of death was read with interest.
>
> I believe the determination of death is best left to the attending physician using whatever tests and consultations he deems advisable in that particular case.

In a limited sense, we quite agree with the foregoing response. Indeed, if a statutory definition of death were to make brain death (expressed as "the irreversible cessation of all brain function") the *sine qua non* of the death of the individual, then without more, the determination of brain death would surely be left to the attending physician using whatever tests and consultations he or she deemed advisable in that particular case. Precisely as we have urged above (in the second perception of need for a definition) the process of standard clinical procedures, confirmed or rendered doubtful by laboratory tests and machines, involves no deviations from the recognized practices of medicine. We think it would be extremely ill-advised to attempt, by statute, to delineate *how* the physician may, or may not, conclude that brain death has occurred. The general body of medical opinion as expressed through bodies such as the Canadian Medical Association should remain a persuasive guide as to what procedures are to be taken and what tests are to be performed in relation to the existence, or not, of brain death. Resort to the general standards of professional competence has long been the practice of courts in adjudicating claims of professional negligence and malpractice. We do not propose any change in such practice or criteria in this Report.

An erudite lawyer provided us with thoughtful adverse comments, as follows:

> I am responding to your invitation to comment on your proposal for a statutory definition of death. With a minimum of doubt, my present position is that I am opposed to any attempt to define by statute the criteria by which the fact of death is to be established, and much more am I opposed to attempt to define by statute the time at which death is to be established. Death, like life, is a continuum and, although as a lawyer I see and feel the need of certitude for certain legal purposes, such as establishing the time of death for the purpose of determining whether a policy of insurance has lapsed, or on the question of inheritance where multiple deaths are involved, I am not convinced that it is a fruitful exercise to try to find our solutions by statutory prescription.

> . . . I heard enough . . . from our medical advisers to convince me that the doctors do not rely on a flat EEG, but continue to apply a number of other tests to support the finding. They do this because the flat EEG may appear from time to time with respect to a deeply comatose patient who is under drugs, or for any other cause, but death has not taken place. I do appreciate the presence of the latter part of your definition referring to the consequences of the withdrawal of artificial support, but does this mean that you do the EEG on Friday at 10 a.m. and repeat it 24 hours later? Do you do it once, or whatever?

As with the comment of the eminent surgeon recorded above, we emphasize that we do not propose *any great number* of criteria for our definition, nor would we wish to give legislative recognition or sanctification to *today's* machines, such as the EEG, because more useful and advanced diagnostic instruments may well be developed tomorrow. Further explanation of our approach will be made later in this Report in the exposition of the problems of formulating a definition.

As indicated, many responses were positive and their tenor is reflected throughout this Report. It will be noticed in Appendix "C" that we canvassed several religious bodies on this subject. Of the churches, religious organizations and church-associated institutions which replied, the typical response was the following:

> We do not find the definition objectionable in any way, since it does not conflict with the teaching of our Church.

Because the main ethical concern not only of law and medicine, but also religion, is the preservation or sanctity of human life, we were pleased to note that no religious group dissented from our proposed definition.

CONSTITUTIONAL CONSIDERATIONS

Whether the basic matters of Life and Death be within the legislative jurisdiction of the federal Parliament or the provincial legislatures is a question which we considered. In this regard, we gratefully acknowledge the assistance of the Legal Research Institute of The University of Manitoba and, in particular, the efforts of Mr. Peter Kremer, a law student employed by that Institute to perform research into this question in 1972.

Parliament is given exclusive legislative authority, under *The B.N.A. Act*, to enact statutes relating to the subject of criminal law. Criminal law, of course, comprehends the *Criminal Code* which enacts that murder and manslaughter are crimes. Again, under *The B.N.A. Act* legislative authority is distributed to provincial legislatures exclusively to make laws in relation to those classes of subject described as (1) the establishment, maintenance and management of hospitals, (2) civil rights in the province, and (3) generally all matters of a merely local or private nature in the province. Now it seems

clear that the subject of death, which is not specified in the distribution of legislative authority effected by Sections 91 and 92 of *The B.N.A. Act* may also have a provincial aspect. Thus, not all homicide is culpable, and non-culpable homicide can involve civil rights through invocation of the law of tort.

"*The Fatal Accidents Act*" mentioned earlier in this Report is, for example, clearly within the legislative jurisdiction of the province and it visits tort liability on a wrongdoer "even if the death was caused in circumstances amounting in law to culpable homicide".[20] The burial of the dead, the use of human cadavers for medical education and organ transplantation, and the certification of death are all matters which are within provincial jurisdiction. It is obvious that the provincial legislature could not trench on, or actually repudiate, the *Criminal Code* provisions which forbid: consent to having death inflicted upon oneself; neglecting, without lawful excuse, to bury the dead; improperly or indecently interfering with, or offering any indignity to, a dead human body; or accelerating death from a disease or disorder arising from some cause other than an initial infliction of bodily injury; and so on. It is equally obvious that our proposal involves none of these acts, which are beyond the legislative jurisdiction of the province so long as they are subjects of criminal law duly enacted by Parliament.

Because of the apparently dual aspects of death, it seems to us that the mere abstinence of Parliament from enacting a definition of death does not preclude the Manitoba Legislature from enacting such a definition for provincial purposes so long as the provincial legislation be not repugnant to valid federal legislation. It might be speculatively conceded that if Parliament were to enact such a definition for purposes of, say, the criminal law, then a provincial definition would be rendered inoperative as to criminal proceedings relative to deaths upon which criminal charges would be founded. The provincial definition would still be pertinent, we think, to the provisions of "*The Anatomy Act*"[21] of Manitoba, enacting that a human body which remains unclaimed for a period of 48 hours after the death of the individual shall be under the control of the division inspector.

We conclude that the provincial enactment of the definition of death which we propose would be quite within the legislative powers of the province, and the more so, because there is no federal legislation on the subject. Even if there were, the duplication would not necessarily be fatal to the provincial enactment. As Lederman says:

> Duplicative provincial legislation may operate concurrently only when *inseverably connected with supplemental legislation*, otherwise duplicative provincial legislation is suspended and inoperative.[22]

---

20 Section 3 (1), c. F50.

21 Section 5 (1), c. A80.

22 Lederman, *Concurrent Operation of Laws in Canda*, (1963) 9 McGill L.J. 185.

We think that the statutory definition which we propose would be clearly and necessarily supplemental to the operation of the other valid provincial enactments mentioned herein. Indeed, it is overdue. The provincial aspect of the definition of death demonstrates provincial legislative authority which is at least concurrent with that of Parliament.

PROBLEMS OF FORMULATING A DEFINITION

Although our final recommendation in this Report will be seen to amount to only a few lines of text, it has not been formulated without solving several relevant problems.

First of all, a definition of death must not give rise to absurd ramifications. So it is, that under such definition, a person must not seem to be able to die only in the presence, or upon the pronouncement, of a physician! As stated in our invitation to comment (Appendix "B") the definition should not be irrelevant to deaths which occur, perhaps unobserved, outside of an intensive care unit of a hospital. One could, for example, consider the report[23] of the Winnipeg man who apparently died in early November, 1973, and whose body was discovered on January 9th, 1974, sitting in his car in a rented garage. The car key was still in the dead man's hand when the body was discovered, the car's ignition switch was turned off, and its fuel tank was almost full. Although it might be impossible to pinpoint the precise moment of that man's death, yet it was evident that there had occurred the irreversible cessation of all brain function and tissue disintegration throughout the body. The time of death could not be absolutely precisely determined in this case, only because there was no one present to observe and record the events. There is, however, no doubt that those events did occur.

The second problem of definition relates to the instruments and machines by means of which the events of death can be observed and recorded. Specific mention of them should not be made in the statutory definition. Useful as they are, they manifest the state only of *current* technological advance. Today the EEG is used: tomorrow it may be generally superceded by a more advanced instrument. If possible, a legislature should not have to amend the statutory provision every time the machines are improved or replaced. Therefore, the statutory expression should concentrate exclusively on the physical and neurological processes of the person whose death it defines, if at all possible. It will be noted that the proposed definition in Appendix "B", which was circulated widely, refers generically at least to 'any artificial support'. Artificial support systems are frequently mentioned in this Report and were much discussed by Dr. Saunders with us in formulating our recommendations. This discussion led us to perform a close analysis of that proposed definition including the last part of it which provides:

---

23 *Winnipeg Tribune*, January 10, 1974, p. 1.

> *". . . and when it appears that withdrawal, if already instituted, of any artificial support of that person's vital functions causes or will cause the immediate onset of tissue disintegration throughout that person's body."*

The foregoing passage reflects and suggests some of the procedures set out in considerably greater detail in various criteria of death expressed by the World Medical Association, the Canadian Medical Association and some local hospital committees on medical morals and ethics. Indeed, the final passage of the proposed definition suggests one *means* of determining whether brain functions have ceased or not, but it does not actually set out the unvarnished *fact* of death. It would apply only where the artificial support had already been instituted but would not come into consideration otherwise.

Where respirators or pacemakers are available, attending physicians, in observing proper clinical procedures will turn them off for the appropriately short few minutes in order *to ascertain* whether irreversible cessation of all brain function has occurred. But they will also attempt to elicit reflexes, and will perform other tests, too. Where any person sustains grave injuries on a remote road and no machines are available an attending physician will then, as now, make the requisite professional decisions in determining whether or not the patient be dead. If the patient be dead then irreversible cessation of all brain function will have occurred just as surely, there, on the remote road as it would have, thoroughly monitored, in a modern hospital.

Because it is true that a person ceases to live, whether in an intensive care unit, or in a rain swept ditch, when irreversible cessation of all that person's brain function occurs, we have concluded that the last part (quoted above) of our proposed definition is redundant. A well regarded physician who commented in response to our invitation suggested that the proposed definition end with the words "*. . . brain function occurs*". That physician asserted:

> After considerable thought, I cannot be convinced that the remainder of your suggested definition contributes anything of significance.

With that assertion we agree. The final part of our proposed definition is, therefore, to be abandoned.

Thirdly, it seemed to us that because the need for a definition extends to so many areas of activity, such as insurance, taxation, organ transplantation, tort, survivorship and more, and because it relates potentially to all of the people in our provincial community, the definition should be enacted for all medical and legal purposes. It should not be restricted to just some medical purposes, nor to just some legal purposes, but it should stand for all purposes in which human life and living are factors. To granulate or restrict the definition's scope would be to create unnecessary confusion about whether, and when, it would apply. Therefore, we regard it as a definition to be binding upon physicians, courts, executors, insurers and all who are concerned with the fact and time of death.

RECOMMENDATIONS

We make two recommendations on this subject. Firstly, we recommend the enactment of the definition of death which follows and which conforms to the considerations expressed in this Report. Secondly, we recommend that it be inserted into an existing statute of general application which is familiar to physicians generally. The two recommendations are:

1. The following definition of death should be enacted by the Legislature:

   For all purposes within the legislative competence of the Legislature of Manitoba the death of a person takes place at the time at which irreversible cessation of all that person's brain function occurs.

and

2. The definition of death should be enacted as an amendment to "*The Vital Statistics Act*" of Manitoba.

This is a Report made pursuant to Section 5 (2) of "*The Law Reform Commission Act*", dated this 6th day of May, 1974.

Francis C. Muldoon, Chairman

R. Dale Gibson, Commissioner

C. Myrna Bowman, Commissioner

R.G. Smethurst, Commissioner

Val Werier, Commissioner

Sybil Shack, Commissioner

Kenneth R. Hanly, Commissioner

APPENDIX "A"

BIBLIOGRAPHY

BOOKS

Bichat, M.F.X. *Recherches physiologiques sur la vie et la mort.* Paris: Gabonet cie., 1800.

Fischgold, H. and Mathis, P. "Onubilations, Comas et Stupeurs" Suppl. II, *Electroenceph. clin. Neurophysiol.* Paris: Mason et cie., 1959.

Foster, M. *A Text of Physiology.* London: MacMillan and Co., 1877.

Glaister, J. *Medical Jurisprudence and Toxicology.* 11th ed. Edinburgh: E. & S. Livingstone Ltd., 1962.

Gloor, P. "Hans Berger on the electroencephalogram of man". Suppl. 28 *Electroenceph. clin. Neurophysiol.* Amsterdam: Elsevier Publishing Co., 1969.

Ichijo, S. *Clinical EEG Atlas.* Tokyo: Nanko-Do, 1970.

Mushin, W.M., Rendell-Baker, L., Thompson, P.W. and Mapleson, W.W. *Automatic Ventilation of Lungs.* 2nd ed. Oxford: Blackwell Scientific Publications, 1969.

Saunders, M.G. "Medico-Legal Aspects of Brain Death", Vol. XII of *Handbook of Electroencephalography and Clinical Neurophysiology.* Edited by R.N. Harner and R. Nacquet. Amsterdam: Elsevier Publishing Co., 1974.

Spector, R.G. *Enzyme Chemistry of Anomix Brain Tissue in Neurohisto Chemistry.* Ed. Adams, C.W.M. Amsterdam: Elsevier Publishing Co., 1965.

PERIODICALS

Arnet, William F. "The Criteria for Determining Death in Vital Organ Transplants — A Medico-Legal Dilemma". (1973) 38 *Missouri Law Review* 220.

Bazett, H.C. and Penfield, W.G. "A Study of the Sherrington Decerebrate Animal in the Chronic as well as the Acute Condition". *Brain* 45:185, 1922.

Becker, D.J. *et al.* "An Evaluation of the Definition of Cerebral Death". *Neurology* 20:459, 1970.

Beecher, H.K. *et al.* "A Definition of Irreversible Coma". *J.A.M.A.* 205:85, 1968.

Biörck, G. "When is Death?" [1968] *Wisconsin L.R.* 484.

Biörck, G. "On the Definitions of Death". *World Medical Journal* 137, 1967.

Bowker, W.F. "Experimentation on Humans and Gifts of Tissue: Articles 20-23 of the Civil Code". (1973) 19 *McGill Law Journal* (no. 2) 161.

Crosby, D.L. "Determination of Death". *Lancet* 1:1287, 1970.

Curran, W.J. "Legal and Medical Death — Kansas Takes the First Step". *New Eng. J. Med.* 284:260, 1971.

Gray, K.C. *et al.* "The Canadian Medical Association Statement of Death", *Can. Med. Assoc. J.* 99:1266, 1968.

Green, J.B. and Lauber, A. "Return of EEG Activity after Electrocerebral Silence: Two Case Reports". *J. Neuro. Neurosurg. and Psych.* 35:103, 1972.

Harner, R.N. "Silencio Electroencefalico y Determinacion de la muerte cerebral". *Investig. Clinica.* 31:59, 1969.

Hogan, Brian "A Note on Death". (1972) *Crim. L.R.* 80.

Houts, M. "State v. Jack Ruby". *Trauma* 6:1, 1964.

Jenne, H.B. and Plum, F. "Persistent Vegetative State of the Brain". *Lancet* 1:734, 1972.

Kapoor, S., Kirk, B.W., Saunders, M.G., Schachter, P. and Taylor, J.R. *Trauma* 14:1, 1972.

Kennedy, I.M. "The Kansas Statute on Death — An Appraisal". *New Eng. J. Med.* 17:946, 1971.

Kimura, J., Gerber, H.W. and McCormick, W.F. "The Isoelectric Electroencephalogram". *Arch. Intern. Med.* 121:511, 1968.

Kraemer, W. "From reanimation to deanimation". *Act. Neurol. Scand.* 39:139, 1963.

Lederman, W. "Concurrent Operation of Laws in Canada". (1963) 9 *McGill L.J.* 185.

Mills, D.J. "The Kansas Death Statute: Bold and Innovative". *New Eng. J. Med.* 17:968, 1971.

"Moment of Death". *Brit. Med. J.* 2:394, 1963.

Mooallen, J. "The Determination of the Moment of Death with Particular Reference to the Transplant of Human Organs". *Les Cahiers de Droit* 12:613, 1971.

Sanders, David and Dukeminier, Jesse. "Medical Advance and Legal Lag". (1967-68) 15 *U.C.L.A. Law Review* 357.

Schwab, R.S., Potts, F., and Bonazzi, A. "E.E.G. as an Aid in Determining Death in the Presence of Cardiac Activity (Ethical, Legal and Medical Aspects)". *Electroenceph. Clin. Neurophysiol.* 15:147, 1963.

Shapiro, H.A. "Criteria for Determining that Death has Occurred". *J. Forens. Med.* 16:1, 1969.

Silverman, D. "Cerebral Death — The History of the Syndrome and Its Identification" *Ann. Intern. Med.* 74:1003, 1971.

Silverman, D., Saunders, M.G., Schwab, R.S. and Masland, R.L. "Cerebral Death and the Electroencephalogram". *J.A.M.A.* 2090:1505, 1969.

Silverman, D., Masland, R., Saunders, M.G., and Schwab, R.S. "Standards Technicos Minimos Para el Registro de Electroencefalogramas en Casos de Posible Muerte Cerebral". *Arch. Venezol. de Psiq. Neurol.* 15:89, 1969.

Silverman, D., Masland, R., Saunders, M.G., and Schwab, R.S. "Irreversible Coma Associated with Electrocerebral Silence". *Neurology* 20:525, 1970.

Smooker, K.M. "U.S. Statute Demonstrates Difficulties in Providing a Specific Definition of Death". *Medical Post.* Dec. 28, 1971, p. 16.

Ward, A.A. and Wheatley, M.D. "Sodium Cyanide: Sequence of Changes of Activity Induced at Various Levels of the Central Nervous System". *J. Neuropath. Exp. Neurol.* 6:292, 1947.

Zellick, Graham. "Organ Transplantation". (1972) *The New Law J.* 1078.

PAPERS AND REPORTS

Ivan, L. "Spinal Reflexes in Cerebral Death". Paper presented at 7th Canadian Congress of Neurological Sciences, Banff, Alberta, 1972.

Walker, A.E. "Verbal Report on N.I.H. Project on brain death to Am. Neurol. Assoc. sub-committee". Chicago: 1972.

NEWSPAPER ARTICLES

Winnipeg Tribune. October 29, December 6, 1973, January 10, 1974.

REFERENCE BOOKS

Ballantine *Law Dictionary*. 3rd ed. Lawyers' Co-op. Publishing Company [entitled "Ballantine's Law Dictionary"].

Black *Law Dictionary*. 4th ed. St. Paul, Minnesota: West Publishing Co., 1951 [entitled "Black's Law Dictionary"].

Carbonnier, J. *Droit Civil.* Vol. 1. Paris: Presses Universitaires de France, 1955.

Jowitt, Earl. *The Dictionary of English Law.* Vol. 1. London: Sweet & Maxwell, 1959.

Ludes, F.J. and Gilbert, H.J., eds. *Corpus Juris Secundum.* New York: American Law Book Co., 1966.

Planiol, M. *Traité élémentaire de droit civil.* English translation. Vol. 1. Louisiana State Law Institute, 1959.

Stroud *Judicial Dictionary of Words and Phrases.* Vol. 2. 4th ed. London: Sweet & Maxwell, 1972 [entitled "Stroud's Judicial Dictionary of Words and Phrases"].

Wharton *Law Lexicon.* 14th ed. London: Sweet & Maxwell, 1938 [entitled "Wharton's Law Lexicon"].

APPENDIX "B"

MANITOBA

John M. Sharp
Chief Research Officer/
Directeur de Recherches

Miss S. Pelletier
Secretary/Secrétaire

331 LAW COURTS BUILDING
WINNIPEG 1, MANITOBA
TEL: (204) 946-7641
R3C 0V8

LAW REFORM COMMISSION

COMMISSION DE REFORME DU DROIT

December 27, 1972

TO:

Members of the Medical and Legal Professions of Manitoba

re: A statutory definition of death

The Commission believes that a needed reform of the law would be effected in a statutory definition of death, which would apply for all medical and legal purposes. The need has become apparent in view of two factors:

(i) the ability of sophisticated machines to maintain respiration and circulation in a body after brain functions have ceased; and

(ii) the increasing incidence of significant matters from taxation to transplantation of organs, in which the occurrence and time of death ought to be ascertained with certitude and in freedom from extraneous considerations or pressures.

We have attempted to formulate a definition which would suit all conditions and still afford everyone concerned the security of exactitude when and where possible. It should apply with all possible precision to intensive-care unit deaths, and not be irrelevant to the circumstances in which a person might wander out into a night blizzard in December and the body might not be found until the following May.

Our proposal, about which we seek your opinion, is:

The death of a person takes place at the time at which irreversible cessation of all that person's brain function occurs, and when it appears that withdrawal, if already instituted, of any artificial support of that person's vital functions causes or will cause the immediate onset of tissue disintegration throughout that person's body.

The proposed definition purposely says nothing about the cause of death, which, we think should probably be left to be determined by the best known and available techniques, as they may be developed. Therefore, the civil or criminal consequences related to the cause of death are not of paramount, or even direct, concern in this project.

The Commission would be grateful to receive at the above address any written comments which you think helpful.

Yours sincerely,

Francis C. Muldoon
Chairman

APPENDIX "C"

THE FOLLOWING ARE THE PERSONS CANVASSED FOR OPINIONS

General mailing to all members of the Law Society of Manitoba

General mailing to all members of the Manitoba Medical Association

Rev. Paul Marx, o.s.b., Tri-College Research Program, College of St. Benedict, St. John's University, Collegeville, Minnesota

Rev. Dr. A. Grant Smith, Chairman, Manitoba Conference of the United Church of Canada

Rev. Ernest Wiebe, Conference of Mennonites in Manitoba

Rev. Clifton Monck, Lutheran Council in Canada

Miss Eleanor Rice, Anglican Church of Canada

Major John Ham, Divisional Commander, Salvation Army — Winnipeg Citadel

Very Rev. D. Luchak, Ukrainian Greek Orthodox Consistory

Msgr. N.J. Chartrand, Archdiocese of Winnipeg

Archbishop Maxim Hermaniuk, Ukrainian Catholic Church

Watch Tower, Toronto, Ontario

Rev. Norman Naylor, Unitarian Church

Mr. Morris Caplan, Executive Secretary, Congregation Shaarey Zedek

Mr. C.D. Nielsen, Branch President, Church of Jesus Christ of Latter-Day-Saints

Mr. W.A. Panting, President, Re-organized Church of Jesus Christ of Latter Day Saints

Hellenic Greek Orthodox Church of Winnipeg Inc.

Civil Code Revision Office, Quebec

Law Reform Commission of Canada

Law Reform Division, Department of Justice, Fredericton, New Brunswick

Nova Scotia Law Reform Advisory Commission

Law Reform Commission of Prince Edward Island

Institute of Law Research and Reform, University of Alberta

The Law Reform Commission of British Columbia

Ontario Law Reform Commission

APPENDIX "D"

COMMENTS ON THE DEFINITION OF DEATH RECEIVED FROM:

V. Chernick, M.D., Professor and Head, Department of Pediatrics, Paediatrician-in-Chief, The Children's Hospital of Winnipeg

Allan F. James, Q.C., Minnedosa, Manitoba

D.L. Kippen, M.D., Winnipeg Clinic

N.D. McCreath, M.R.C.P. (Lond.)., Medical Director, Grace General Hospital

Dwight Parkinson, M.D.

I.J.R. Deacon, Q.C., Barrister and Solicitor

Dr. O.A. Schmidt, President, Medical Staff, Winnipeg General Hospital

L.C. Bartlett, M.D., F.R.C.S. (C)

M.J. Newman, M.D., St. Boniface General Hospital

Paul V. Adams, M.D., F.R.C.S. (C), F.A.C.O.G.

H.M. Ross, M.D., Pathologist, Victoria General Hospital

Institute of Law Research and Reform, University of Alberta

V. Rev. D. Luchak, Chairman of the Presidium, Ukrainian Greek-Orthodox Church of Canada

H. Allan Leal, Chairman, Ontario Law Reform Commission

Richard L. Masland, M.D., Chairman, Committee on Irreversible Coma and Death, College of Physicians and Surgeons of Columbia University

Major John J.H. Connors (ret.), President, Catholic Hospital Conference of Manitoba

Jacques Fortin, Law Reform Commission of Canada

Civil Code Revision Office, Quebec

Graham D. Walker, Secretary, Nova Scotia Law Reform Advisory Commission

Alan D. Reid, Director, Law Reform Division, Dept. of Justice, New Brunswick

The Salvation Army, Public Relations Department

Nova Scotia Hospital Insurance Commission, Legal Section

Mr. K. Peter Richard, Barrister and Solicitor, Antigonish, Nova Scotia

The Medical Society of Nova Scotia

Kidney Foundation of Canada (Manitoba Branch)