METAPHYSICS VERSUS MEDICINE IN THE EVALUATION OF CAUSES

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THE title of this paper may have meaning or it may not. I have no doubt that for two weeks a fierce debate about its meaning has been raging up and down Collins Street as on the celebrated occasion when Mr. P. D. Phillips posed the query "Are surgeons charitable?"[1] and when you, Mr. President, asked the question "Can't you keep a secret?".[2] The train of thought was initiated a few years ago by Judge Norris in this society when he discussed the mental content of negligence.[3] On October 13, 1947, he told us, one Dr. Graham had administerd a spinal anaesthetic to two patients at North Derbyshire Royal Hospital. Unfortunately both patients became permanently paralysed. Paralysis after spinal analgesia is a recognized rare complication; but two in a row were too much. Sir Robert Macintosh, a leading British anaesthetist, began a search for other causes which might have been operating. He thought of the carbolic acid in which the phials of nupercaine had been soaked for many months. Carbolic is a corrosive substance which can destroy nerve roots, while nupercaine cannot. He examined hundreds of phials which had been soaked in pure carbolic and in one he found tiny perforations which might have let the carbolic through. Then he went to the court with a story that invisible cracks in the glass must have been responsible. The court accepted his explanation. Dr. Graham and the hospital were technically guilty of negligence but they were exonerated because, until then, the possibility of leak through invisible cracks had not been known. But the implication was serious for future cases of this kind; any hospital which persisted in the carbolic custom would be culpably guilty on future occasions.

Not many of us know the later history of this case. In 1956 two doctors, named Payne and Bergentz, reported in the *Lancet* cases of paralysis after spinal analgesia in which the glass phials had not been soaked in carbolic or in any other solution.[4] Other

similar cases have since been reported and the invisible cracks theory is dead. Payne and Bergentz criticized Macintosh, who defended his theory and attacked them, casting doubt on the training, skill and experience of any anaesthetists who had these tragedies after spinal analgesia.[5] Sir Francis Walshe, a leading neurologist, then entered the fray and pointed out the errors of Macintosh.[6] His letter commenced:

> "It becomes almost embarrassing when a university professor of anaesthetics persists determinedly in appearing completely simple in this problem of the unexplained perils inherent in spinal anaesthesia . . ."

The letter finished:

> ". . . Surely it is not unreasonable to ask of a university department responsible for research, for teaching and setting an example of practice in its own field, something more academic and serious than the collection of three out-of-date anecdotes about cracked pots."

Now I do not necessarily approve of the polemics either of Macintosh or of Walshe. The error of Macintosh seemed to proceed from an unphilosophical approach—he seemed too desirous of embracing the rare and ingenious and forgot the obvious and self-evident. Like the three policemen dressed down by the sergeant for letting a criminal escape from a picture theatre. He said, "Didn't I tell you to guard all the exits" and the excuse was "Yes, but he left by the entrance".

While I was reflecting on this case and its serious implications for the ordinary doctor, I came across a humorous and penetrating article by Professor Ben Small, of Indiana University Law School, entitled "Gaffing at a Thing Called Cause".[7] Writing in Texas Law Review in 1953, he said the assignment of cause is often a metaphysical and not a medical act. He pointed out the difficulty of correlating the doctor's concept of a specific cause with the lawyer's broader concept.

> "The term 'legal cause' is one used to denote the fact, that the sequence of events through which the actor's tortuous act or omission has brought about . . . the harm which another has sustained, is such as to make it just to hold the actor responsible therefore."

In Workers' Compensation, said Small, this broadens still further to "arising out of and in the course of the employment". In Melbourne in 1951 it was broadened to include every sick-

ness occurring during the hours of employment. Throughout the world the development of compensation legislation has made this broadening necessary because the worker through economic inequality must get the benefit of the doubt. Small said doctors would be horrified to find erysipelas "caused" by a fall into a coal-hole or malaria caused by a railway accident.

In Scotland in 1955 arthritis caused or aggravated by cold was in the news.[8] The Glasgow Court of Sessions awarded a teacher £2,000 damages against Glasgow Corporation. She had been required to teach for two and a half years in a room in which the temperature would fall as low as 42°F. in winter; it never rose to the regulation 56°F. The teacher and the class had worn their overcoats in winter. Her health had gradually deteriorated and she had developed rheumatoid arthritis. Two leading rheumatism specialists, one from Harley Street and one from Glasgow, gave evidence that cold and damp were not causative factors in arthritis. The court rejected their evidence and by seven to five the jury found that the cold and damp had caused or aggravated the rheumatoid arthritis from which the patient was suffering. In February, 1955, the First Division of the Court of Session unanimously dismissed an appeal by Glasgow Corporation for a new trial. The Court said:

> "There was a substantial body of evidence from the medical experts on both sides that, although there were conflicting views on the cause of rheumatoid arthritis, there was a school of thought to the effect that cold and damp were causally related . . . the balance of the expert testimony had certainly been adverse."

Three weeks later the Court was rebuked by the scientific co-ordinating committee of the Empire Rheumatism Council (sixteen names), in a letter to the *British Medical Journal*:[9]

> "This case raises serious issues and it is thought that our views may be worth putting on record. In a country where we all frequently are subject to cold and damp, very strong evidence is needed before aetiological significance can be attributed to these factors. Nobody will deny that they may cause symptomic aggravation but evidence that they actually cause rheumatoid arthritis is not forthcoming."

The writers then quoted a statistical table of the causative factors in rheumatoid arthritis which the Empire Rheumatism

Council had published in 1950. Of 700 patients with rheumatoid arthritis, not one had been caused by cold. They did not say how this statistical information could be of assistance to a court in deciding the effect of extreme and prolonged cold on one particular patient. Dr. R. L. Worrall then criticized them in a letter to the *British Medical Journal*:[10] He said:

> "It is scientifically unsound and legally rash to split hairs on the question of whether cold and damp are causal or merely aggravating factors of the disease . . . (He deplored the sorry spectacle of a research body) vainly searching for unknown causes of a complex condition in the full view of a sceptic public . . . in many, if not in all diseases there are numerous causal factors, some more significant than others, but all converging to a final common pathological causation."

Do you think it is scientific to argue vaguely in public about theories of causation versus aggravation, when the welfare of a crippled girl has to be decided and the reputation of the Court has to be preserved? I believe that the Court by its metaphysical approach was more fitted than the doctor to decide if cold had been a significant factor in the sequence of events. We should try again and again to remember that in the Court's eyes the sequence of events always will carry more weight than the fashionable medical theory which may explain today and fail to explain tomorrow. Small[7] has referred to a number of cases in which medical witnesses were incapable of taking the obvious sequence of events into account. He cited the case of a previously healthy victim of an explosion who had burns, multiple fractures and two perforations of the skull, and was admitted to the hospital in deep shock. He did not regain consciousness; on the fifteenth day he started vomiting continuously and next day he died. In the litigation which ensued, two out of three doctors soberly assigned the cause of death to blocked bowels and said the explosion was not the cause. But, said Small, for the metaphysical virtue of commonsense—the commonsense of the court which rejected the evidence of these doctors—the widow would have received no compensation.

In workers' compensation acts throughout the world we have said that the meaning and the full implication of the word "accidental" and of the word "cause" have come to have for lawyers a very much broader significance than they once had.

But if the doctor is unduly conscientious, or if he fails to see the real purpose of the law, he may undergo wrestling of the soul like the unduly conscientious farm labourer, but recently arrived from Ireland, who was working on a farm near Ballarat and was gored by a bull. A few days afterwards he was in hospital and barely regaining consciousness. As soon as his eyes opened, the farmer, his employer, put compensation papers in front of him to sign. He read through the document and a look of real worry came on his face. "You wish me to declare 'twas an accident" he said, "faith and I can't do that. That bull meant it; you have me dying oath on that."

Every age has had its recognized causes of disease or of death which seem nonsense to succeeding ages and doubtless would have seemed nonsense to the preceding ages. In fiction the death or illness of the lover or the heroine is usually related to the last recorded event which caused him some slight irritation. Thus Keats died of tuberculosis not long after his poems had been attacked in an article in the *Edinburgh Review*. But I doubt if Keats was very sensitive to criticism; he probably welcomed it as good publicity. But Byron was abnormally sensitive and he transferred his own feelings to Keats and wrote: (*Don Juan*)

> 'Tis strange the mind, that very fiery particle,
> Should let itself be snuffed out by an article!

Throughout history men have been like this, theorizing and generalizing when they have had only a single unsupported fact to go on. The history of medicine is the history of the shedding of a succession of beliefs which have often amounted to superstitions. Two thousand four hundred years ago Hippocrates inveighed against the makers of hypotheses:[11]

> "Those who speak or write on medicine first lay down for themselves some hypothesis such as hot, or cold, within a narrow compass, and believe there are only one or two original causes of disease or death among men, they are clearly mistaken in much that they say. This is the more reprehensible in a profession everyone has to consult about important matters, whose worthiest members are held in the highest honour?"

But Hippocrates himself was dominated by the theory that diseases were due to indigestion of the four humours—black bile, yellow bile, phlegm and blood. And the indigestion of the

humours was brought on by indolence, intemperance and vexation. Thus in ancient times most diseases were self-inflicted and had to be cured by punitive treatment—purging, douching, vomiting, bleeding, sweating and blistering. With each age new sets of causes were fashionable, all unlikely to be near the real cause.

The first statistician of the causes of death, in the year 1674, was John Graunt, who started with ten causes:[12] thrush, convulsions, rickets, teeth, worms, abortives, chrysomes, infants, livergrown, overlaid. In each of these cases the most obvious agent or symptom was raised to the status of a cause. All were internal causes except "overlaid" in the case of the feeble child which died in its mother's bed; there the simple word unkindly accused the mother for the rest of her life of having killed her child by negligence. The idea of a bacterial infection—external causes for most diseases—became firmly established between 1870 and 1890. But though we learned to speak of a bacterial cause, we were taught that it was not the sole cause. Something else had to happen to establish the bacteria in the body. William Osler, Clifford Allbutt and the other great teachers wrote and talked of the seed and the soil; a favourable condition of the soil was necessary for the establishment of the seed.

This line of argument, based on scientific medical traditions, would allow medicine to fall in with the recent developments of the law. In seeking clues to a philosophical approach; I recently happened on the contribution of Mr. P. D. Phillips, whose excellent paper is in Volume 5 of the *Proceedings* of this Society.[13] Mr. Phillips traced the development of Workers' Compensation Legislation from its first inception to 1939. During that time it had evolved into something it was never intended to be in the first place. In the beginning the legislation protected the worker against being injured or disabled at work. By judicial decisions of the higher courts the meaning of causation has been extended. Mr. Phillips described the causal connection as the "but for" form—an accident which would not have happened but for the employment, a disease which would not have begun but for the accident. He quoted Lord Haldane's statement of 1917:

> "In strict logic the cause cannot be pronounced to be less than the sum of the entire conditions. But in ordinary speech we select some one or more out of an infinite number of conditions to be treated as the cause."

Seven years later Lord Haldane said: "The scope of the Act and the inquiry which it enjoins appear to extend also to the general conditions under which the workman has been directed to act." Mr. Phillips said in 1940: "We only begin to understand causation when we abandon the one precise basis of cause in the law and realize that every particular branch of the law with its own policy has its own kind of causation."

In 1949 I wrote an article on ten cases of polyarthritis after injury to a joint.[14] I was trying to relate the injury and the disease on scientific grounds and did not dream that I would be asked to give my opinion in more than 100 cases of neurological and arthritic disease after injury. But for the present discussion pneumonia will do as well, because rare cases of pneumonia have been reported to follow immediately after an injury. The mechanism of the disease is infection of the lung by an organism, which is known as the biological cause. In the rare case injury is a precipitating cause which sets the biological cause in motion. Severe and disabling, or fatal, heart disease obeys the same rule; in a small percentage of cases the attack comes on at the very moment the patient is making an extreme physical effort. In this Society a few years ago the connection of effort and heart diseases was explained away with the help of a statistical table which showed angina pectoris and coronary occlusions as separate entities.[15] This error lies in the realm of metaphysics. It is the fallacy of what Alfred North Whitehead has called misplaced concreteness.[16] Philosophically, it is absurd to say that a disease has a single cause; and it is more illogical to regard a disease as an entity.

I may seem to be quibbling when I say that this distinction is important—that a disease is not an entity. Diseases are pure abstractions and have no real existence. The sick person is the entity. If he displays a certain pattern of symptoms we may give them a name because they resemble certain named symptoms on other people. It is scientific to describe the symptoms and to name the disease; but each patient is totally unlike all other patients and consequently his symptoms are always different. The belief in entities sometimes forbids the doctor to believe in symptoms that do not fit into a standard clinical picture. If the alleged symptoms (usually painful) follow an injury, and particularly if the patient is a litigant, they are explained away by the uncomplimentary names of malingering, hysteria, compensation neurosis, functional overlay, and so on.[17] This is a

deplorable trend in medicine, which says you shall not sincerely enquire into the patient's symptoms and take a proper medical history. Less than a year ago a nurse wrote to the *Lancet* and said: "It is becoming increasingly common these days for the doctor to state on a patient's notes—usually after many months of treatment—that there is a large 'psychological overlay' ";[18] . . . She went on, "either your diagnosis was wrong or your treatment was a failure. It is a convenient umbrella under which to shelter, but from the patient's angle it is a complete write-off." A week later Dr. A. Chatelier wrote and commended Miss Kay for exposing the hateful tendency in doctors . . . to insult the patient with 'psychological overlay' instead of frankly admitting their own inadequacy.[19]

Clifford Allbutt was one of the great medical thinkers and teachers of the past century. Dr. Clive Fitts in Volume 5 of the *Proceedings* of our Society has paid him a gracious tribute.[20] Again and again Allbutt harped on this fundamental error of thinking which is so common in medicine. When a student asked him if a certain disease was an entity, Allbutt replied: "Never call anything an entity which you cannot put on a plate on a table".[21]

Similarly with cancer or any other disease. Having diagnosed it, we should then record the individual symptoms in a purely objective state of mind. No two cases of cancer are exactly alike—each presents individual differences in detail quite unlike all other cases of murder. Now I shall tell you of a debate in U.S.A. about traumatic cancer, which is being conducted on one side with extraordinary venom. The medico-legal literature of cancer after injury shows the same three features as does the literature of the other diseases I have mentioned. These features are:

1. Reports by practising doctors of a few definitely traumatic cancers.
2. Denials by medical scientists of possibility.
3. Judgements of courts which agree with clinicians and disagree with scientists.

Most of the traumatic cancers have been sarcomas, though epitheliomas of the skin after injury keep cropping up. Dr. J. G. Belisario of Sydney has seen a skin cancer develop along the line of a three months scar and has mentioned a dozen cases reported by others.[22] Leighton and Schmidtke of Missouri in 1940 reported thirteen cases of traumatic cancer (mostly sarcomas)

and reviewed 100 in the literature.[23] Since then writers in medical journals have reported at least a further twenty cases of cancer which presented the necessary six criteria laid down by the French pathologist Segond: the trauma must be (1) authentic; (2) significant; (3) on previously healthy tissue. The tumor must be (4) on the site of the injury; (5) appear soon after; (6) be undoubtedly malignant.

These criteria were accepted by the American pathologist Ewing and are usually inaccurately called "Ewing's postulates."[24] The sixth and last one of these criteria, the malignancy of the tumour, is the only one which especially concerns the pathologist. The other five are concerned with history, which any honest doctor and indeed many non-medical people, are capable of answering.

From 1927 to 1938 the *Journal of the American Medical Association* reported at length five judgements of appeal courts which concerned traumatic sarcomas.[25-29] All the decisions favoured the injured worker. Of course we all know that the decision of a court has no scientific value but, if we study the reasons given by the court, they may prove to be weighty and unanswerable. Here is part of a 1927 decision of the Supreme Court of Appeals of Virginia; the man had died from a sarcoma which had followed injury:[25]

> ". . . the court finds that a perfectly healthy, strong man, who had never lost any time from work or complained of any illness, suffers an injury and from that time on is incapacitated; he grows worse and worse, and sarcoma develops at the site of the injury, from which he dies. The open mind, under such circumstances, can reach no other conclusion than that reached by the industrial commission, namely, that the sarcoma was either caused by the injury or was aggravated by it. As the Chairman of the Committee said: 'The general rule clearly to be adduced from decisions in this type of case is that if the facts show a causal connection between the injury and the development of cancer, then the two cannot be separated, and the victim of the cancer is entitled to compensation. It frequently appears in the reports of these cases that the doctors disagree as to the probable connection between a blow and the development of cancer, but from the standpoint of the compensation act, where a workman is apparently healthy . . . and able to perform his regular work, and immediately following a

severe blow a condition sets up which later turns out to be cancerous, the commissioner believes that the connection between the blow and such development is clear.' To this the court may add that the courts have in general found no difficulty, in cases similar to this one, in applying the ordinary rules of evidence, and in drawing the ordinary conclusions of cause and effect from established facts this court finds none. This, the court doubts not, courts will continue to do with a full sense of justification and without apology until the cause of cancer is definitely and scientifically established."

The 1938 case was heard by the Supreme Court of Kansas;[29] it was widely publicized in 1944 when Dr. W. D. Woodward gave the details in a letter to the *Journal of the American Medical Association*.[30] Woodward's letter had been provoked by a shocking Editorial in the *Journal* which had said:[31] (i) that cancer should never be attributed to a single injury; (ii) that industrial tribunals usually give it to the worker because they cannot weigh evidence; (iii) "as long as physicians are willing to testify under oath that in their opinions a single trauma can cause . . . cancer . . . industrial commissioners cannot be blamed if they accept such evidence . . ."

This surprisingly unbalanced editorial was supported a few weeks later by a letter from a New York scientist named F. J. Stewart, who said emphatically that trauma could not possibly cause cancer.[32] Woodward then wrote his letter—a summary of the Kansas case:[30]

"In April, 1935, about 11 p.m. in Salina, Kan., Mr. Parker, in the course of his employment, was carrying a box of books. He stumbled, the box struck and damaged the top of a desk, and Parker's chest struck the box. Before quitting work, about 1 a.m. Parker left a note for his supervisor reporting the incident. Whether he reported at that time he had been hurt is not clear, but when he reached home shortly after 1 o'clock he told his wife of the accident and that his chest had struck the box and was hurting. There was no evidence that he had up to that time suffered from any chest pain. His wife did not examine his chest until three or four weeks later. Then she found a red spot about the size of a dollar. On May 15 Parker consulted a physician. About the same time—possibly a month or six weeks or

possibly two months after the accident—he told his supervisor that he had hurt his chest when he fell with the box of books and that a lump on his chest was caused by a bump or a bruise. Two weeks later, admittedly six weeks to two months after the accident, he showed his supervisor 'the swelling' and told him that he got it when he dropped a box about two months previously. Parker continued at work for about fourteen months, although under the care of a physician, Dr. Jenney. By June 16, 1936, the tumour had grown to a lump the size of a baby's head. It was then removed by an operation. Thereafter Parker was confined to his bed until his death, Sept. 16, 1936.

"In proceedings by Parker's widow under the workmen's compensation act, four physicians testified. Dr. Jenney, who had treated Parker from about three weeks after his injury until the time of his death, testified that when Parker first came to his office he had a hard protuberance, tumour like, and that he, Jenney, believed that the fall and hurt of which Parker told him was the cause of the injury that eventually developed into the sarcoma of the breastbone. Dr. Fitzpatrick, who had taken x-ray pictures of Parker's chest in March 1936, testified that they revealed a growth on the chest and bone, destruction of the sternum and cartilage of the ribs in the front of the chest; he gave it as his professional opinion that Parker's condition could have possibly come from the alleged injury to his chest in April, 1935. Dr. Mowery, who removed the growth, gave it as his professional opinion that the tumour resulted from the injury. Dr. Seit, an expert called not by the claimant but by the respondent, testified that sarcoma malignancies are not traceable to trauma in more than two per cent of the cases, or even less, but he added:

> 'The important thing is the establishment of the fact of a trauma, and finding within this tissue or that immediately adjacent to the periosteum and the structure of the bone or immediately adjacent to the point of the alleged injury, evidence of the injury. If in such a tissue anywhere from four weeks to a year, or even more, a malignancy develops, I believe it would be considered due to the trauma' ".

The Supreme Court of Kansas upheld the appeal of Parker's widow and said:

". . . shall this court say that Parker's prompt report to Cameron, his supervisor, about his tripping and falling . . . his later statement to Cameron that he had hurt his chest in the same fall, the rapid growth of the malignant tumour on his breastbone and the professional opinions of the doctors that such a malignant growth was probably due to the injury as narrated by Parker—all these evidential matters, including the pertinent circumstances, were not sufficient to establish the fact of the accident and the injury? How could the evidence be stronger?"

Stewart then took three years to prepare his reply. He studied the records of the Kansas case and in 1947 he filled twenty pages of the *Bulletin of the New York Academy of Medicine* with abuse of this kind:[32]

"The alleged relationship was something stimulated by a physician looking for a cause for something he did not understand. One wonders if the patient were not more astute than the doctor because the former never filed any claim for compensation during his lifetime and the institution of claims seems to parallel roughly the receipt of bills for medical and funeral expenses.

. . . . . .

The sincere investigator works under great disadvantage when he endeavours to elucidate the role of trauma. Hospital histories usually taken by residents are of essentially no value. Statements of patients are accepted as bona fide and go down in histories without critical analysis and without the slightest evidence of scepticism.

. . . . . .

When a case reaches a compensation court the claimant's testimony is of no scientific value whatever despite what a referee may think. The stories told may combine the best features of Baron Munchausen and Alice in Wonderland. Unfortunately I do not believe that medical testimony of the average sort is much better. First of all the physician unfortunately is testifying for a fee or in order to collect a bill for services rendered and I am sufficiently sceptical of my colleagues to believe that some, at least, share the common herd's instinct to collect where they can . . . This at once restricts material to be analysed to cases with no medico-legal import. Now it would seem that they might

> afford an answer but they do not. They do not because the average surgeon does not know how to question a patient. If I had my way I would turn over every case claiming trauma to a psychiatrist to see how an original story of trauma would end up.

Apparently he believes in the infallability of psychiatrists. Stewart attacked the motives of Woodward in similar language. Further he 'diagnosed' the tumour of the sternum on x-ray evidence alone, ten years after the patient's death. He maintained that it was a secondary growth from an undiagnosed carcinoma of the kidney. In 1952 a dermatologist named J. G. Downing reported in the *Journal of the American Medical Association* one case of cancer after a single trauma.[33] About Stewart's article he said:

> "Articles of this type are not conducive to the thorough investigation of the worker's claim. In other words, the doctor assumes the role of plaintiff, physician, lawyer and judge, which is rather a large role for one person."

Stewart is a pathologist who never sees a live patient and probably has few opportunities of taking histories or of seeing human tumours in their early stages. Yet his ranting has received wide publicity; the whole of the 1947 article has been published in 1959 in *Trauma and Disease*.[34] This is a medico-legal collection of the allegedly best articles on trauma published during the past decade. I was flattered to find a 1953 article of mine on injury to the nervous system included in it.[35] But when I studied all the other articles I felt less overwhelmed. A. R. Moritz, the editor, (a pathologist who specializes in the heart) admires Stewart's article, and so do many of the other (so-called) authorities he has chosen. On page 446 Moritz has reflected on the commonsense of judges, lawyers and juries who are often unduly impressed by the sequence in which events have occurred.[36] Anyone who studies all these articles will see that the writers give away both their prejudices and their intentions on every page they write. Like the woman who consulted a fortune teller and was told her husband was going to die a violent death. Her next question was, "will I be found guilty or acquitted?"

It is strange the amount of emotion these questions have aroused in some American scientists, until they doubt even the honesty of those who have tried to be just to the rare patient whose cancer really did follow an injury. Most of them (in-

cluding Stewart) apply a reversed-statistics rule which no scientist should ever apply to a single case. The rule says that minor injuries are very common; and yet how few cancers are ever reported to follow them. The reversed-statistical argument is often applied in another way: "I have seen 10,000 cancers and none were caused by a single trauma, therefore a single trauma is not likely to have caused this one." They all cite one R. Lewy who in 1933 statistically analysed 27,000 cases of injury and found that only thirty-seven had developed cancer.[37] But the scientist should put these prejudices out of his mind before he would consider the effect of trauma in an admittedly rare case.

Dr. M. G. Seelig of Missouri in 1947 had seen four cases of cancer evoked by injury, and pointed out that the pathologists had fallen into philosopher Hume's error of rejecting the abstract principle of causalty.[38] This is a pitfall which has entangled many scientists and is leading to the rejection of all causation, anywhere in nature. In the mass of accumulated literature, said Seelig, the obstinate refusal to admit a cancer-causing factor in trauma leads to humorous contradiction; thus most of them cite Ewing as saying it is not possible, then in the next sentence they contradict themselves by quoting Ewing's postulates, which mean that Ewing believes it is possible.

In 1954, L. S. Ellenbogen, a New Jersey radiologist, wrote as follows:[39]

> "It is doubtful whether in any compensation or liability litigation the petitioner gets a less sympathetic hearing than when he claims that a cancer has developed from a single trauma. Medical testimony in compensation trial records disclose a surprising lack of knowledge by many physicians concerning authoritative findings and opinions indicating the occasional existence of an etiologic relationship between trauma and cancer. A recent article in our state journal has attempted to exclude rigorously even the remote possibility of such a relationship and has deprecated attempts to seek compensation on the basis of traumatic cancer."

The writer was referring to an article by N. Demy, entitled "It's nice money if you can get it"; the thesis was that all doctors who testified for the patient were dishonest.[40] There are, said Ellenbogen, plenty of cases in which Ewing's six postulates are fulfilled; Stewart committed an absurd error of logic in saying

that because an occurrence was rare it could not happen. The insurance companies, in contrast to the petitioner, are able to pay the fees of leading specialists from all over the United States; yet the specialists (said Ellenbogen) show a surprising ignorance or mental block about the subject.

George W. Crile, a distinguished and scientific surgeon of Cleveland, Ohio, wrote about this subject less than a year ago in an influential new Chicago journal called *Perspectives in Biology and Medicine.*[41] He has accepted the latest belief that cancer cells are carried by the blood, and he says that trauma plays a large part in deciding where the cancer cells will lodge. He uses the old simile of the seed and the soil, and he says that different kinds of damage to the tissues (including direct and uncomplicated trauma) play a big part. Crile has done a great deal of research on animals, and he has produced a lot of experimental evidence about the effects of injury on animal cancers.

Two American lawyers, R. D. Magana of Los Angeles in 1955[42] and C. J. Traylor of Colorado in 1957,[43] have pointed out that none of the anti-trauma scientists could quote any factual experience of their own to support their opinions. They all had used as their authority one Dr. Leila Knox who in 1929 had written a satirical article denouncing a distinguished pro-trauma pathologist named W. B. Coley.[44] Magana said that the scientists see new but well-developed cancers every day, while the practising doctors see the patients and take the histories. They approach the patients from entirely different points of view. The history obtained by the doctor does not accord with the views of the pathologist, who sees the tumour after it has been removed. Magana quotes the various pathologists (Moritz, Stewart, Knox) who cite each other as authorities against the possibility of trauma producing cancer. They all cite Ewing too as an authority. Yet Ewing expressly said a trauma may cause cancer in predisposed tissues. Magana concludes that pathologists are not biased but are victims of a hypothesis dictated by scientific clearness of thought.

Traylor also asks the pathologists why they all set up minimal standards if they do not believe the trauma-cancer relation possible.[44] He analyses the pathologist's views and shows other contradictions. Thus they say that injury may aggravate but never causes; yet they do not know the factor which either ag-

gravates or causes. A chronic irritation often causes cancer; yet no pathologist can say that a single trauma may not occasionally set up the conditions set up by a chronic irritation. Traylor establishes the correct logical principle: expert evidence of medical possibility, taken with other non-expert evidence, may support evidence of medical probability. In such cases the sequence of events is all-important and often tips the scale in favour of the plaintiff. Here again we meet with the principle: it is for the courts to decide the credibility of a witness, not for the pathologist who never saw him, nor even for the clinician. The doctor who loses patience with the court as medically unsound is himself scientifically unsound.

I had intended that this paper should finish at that point but I was compelled to write this postscript when I saw an article "The Role of Trauma in Oncogenesis" in the *Journal of the American Medical Association* of March 18, 1961.[45] Oncogenesis is the latest fashionable term for carcinogenesis. L. S. Auster, the writer, is a Bronx pathologist and his long subheading says: "Analysis of Court Cases Indicates Difference Between Scientific Attitude of Pathologist and the Legalistic Attitude of the Lawyer and Undue Dependence on Traditional Quoted Opinions Rather Than Interest in Facts." Auster pleads for the appointment of tribunals of impartial experts who will sit with the judge. When I read through this allegedly authoritative paper I find that "impartial" means "unable to believe that cancer can ever be caused by trauma". Doctors are attacked for testifying when the payment of their fees depends on the establishment of a causal relationship. The belief in the possible role of trauma, he says, is encouraged by confusion and irrelevancy in obsolete medical literature, consisting chiefly of unauthenticated and partially evaluated case reports.

At last, I thought, the writer is going to give me some recently discovered facts, some new scientific advances to hang my hat on. I read on. I find his definition of medical cause is "a specific incitant the action of which produces a single disease". I am thrilled with expectation and I say to myself: "the cause of cancer has been discovered and I haven't known about it". But I am disappointed to find him arguing, as a fact not requiring proof, that the unknown cause must be a single factor yet cannot be trauma. Auster's chief fact is merely an old opinion hashed and rehashed. He quotes the group who quote each

other, the sarcasm of Leila Knox (1929)[44] the statistics of Lewy (1933)[37] Moritz and the book *Trauma and Disease*[34] and four times in seventeen lines he cites Ewing, who said injury reveals more cancers than it causes.[24]

To make this principle credible, Ewing had invoked a mystical dogma he called traumatic determinism—that a part containing a symptomless cancer is more likely to be injured—and thus bring the cancer to light—than is any other part. There is no proof of this; all that is required of us is a simple faith that it is true because Ewing said it. And Auster goes further and says that, though the cancer has been revealed by the injury, it has not been aggravated. No factor we know can make a cancer grow faster; therapeutic aggravation does not exist.

In that very same number of the *Journal of the American Medical Association,* published nine weeks ago today, I find an article by another distinguished cancer specialist, E. L. Wynder.[46] This pathologist is doing his best to incriminate cigarette smoke as a cause of lung cancer and he writes:

> In contrast to infectious disease, chronic diseases are not likely to be due to one specific factor, but rather are a result of multiple factors . . . In agreement with Hammond, we regard cause as the summation of factors that lead to a certain effect.

Traumatic determinism—the belief that cancers can somehow attract the agent that is applying the trauma—can merit the title of a fact if it helps our argument. The real fact, the injury followed by cancer, can thus be explained away. Robert Burns (A Dream) said "facts are chiels that winna ding". I shall leave the interpretation of that quotation to those Burns lovers who can translate it into English. To me it is a little more intelligible than traumatic determinism. You have noticed that Auster clings to Ewing and his postulates, forgetting that by those very postulates Ewing admitted that traumatic cancer did occur. C. J. Traylor of Colorado joked at the expense of these scientists who set up minimal standards for believing in a thing that does not exist.[43] He compared them to a mother who scolds her children for believing in ghosts, yet tells them to call her immediately if they see a white shrouded object floating in the air.

In this new so-called impartial pseudoscientific medicine I sense a dangerous error in fundamental principles. And it is

already affecting the traditional practice of medicine; we are told the history given by the patient does not matter. Leila Knox in 1929 called the clinical histories of patients "a collection of anecdotes"[44] Auster in 1961 says the history taken by the doctor who first saw the patient is an "unauthenticated and partially evaluated case report".[45] But I believe that anything which discredits the history discredits the whole profession of medicine. In the evaluating of a case I find with more experience how important it is to have a long talk with the patient and get an accurate history. Good medico-legal medicine is good general medicine. I have quoted from a number of previous speakers in this hall. Let me finish by quoting from one of the best doctors who ever addressed this Society, the late Dr. Ralph McMeekin.[47] He was discussing the paper of Mr. P. D. Phillips in 1940:

> A study of medico-legal cases is one of the most useful studies a medical man could be asked to do. After he has really studied a dozen or so of these cases, it not only helps him with the medico-legal side of the problem, but it helps him occasionally to understand the ordinary everyday problems of medical practice . . . A medico-legal case is best for teaching doctors to take a history in detail . . . It would pay them very well indeed to take every care and pay every attention to every case in this sort which they have brought under their notice.

References:

1 Phillips, P. D., Are Surgeons Charitable? *Proc. Med. Leg. Soc. Vic.,* 5: 230, 1953.

2 Smithers, R. A., Professional Privilege, or Can't you Keep a Secret? *Proc. Med. Leg. Soc. Vic.,* 7: 1, 1955.

3 Norris, J. G., The Mental Content of Negligence, *Proc. Med. Leg. Soc. Vic.,* 7: 22, 1955.

4 Payne, J. P. and Bergentz, S. E., Paraplegia Following Spinal Anaesthesia, *Lancet,* 1: 666, 1956.

5 Macintosh, R., Paraplegia Following Spinal Anaesthesia, *Lancet,* 1: 807 and 961, 1956.

6 Walshe, F. M. R., Paraplegia Following Spinal Anaesthesia, *Lancet,* 1: 859 and 1015, 1956.

7 Small, B. F., Gaffing at a Thing called Cause, *Texas Law Review,* 31: 630, 1953; *Trauma and Disease,*34 1.

8 Medico-Legal: Damages for Rheumatoid Arthritis, *B.M.J.,* 1: 1348, 1955 and 1: 525, 1956.

9 Copeman, W. S. C., and fifteen others, Damp and Rheumatism, *B.M.J.,* 1: 690, 1956.

10 Worrall, R. L., Damp & Rheumatism, *B.M.J.,* 1: 861, 1956.

11 *The Genuine Works of Hippocrates,* translated by Francis Adams, 1849, Williams & Wilkins, Baltimore, 1939.

12 Graunt, J., *Natural and Political Observations Mentioned in a Following Index and Made upon the Bills of Mortality,* Martyn, London, 1676.
13 Phillips, P. D., Some Aspects of Workers Compensation Legislation. *Proc. Med. Leg. Soc. Vic.,* 5: 119, 1940.
14 Kelly, M., Rheumatoid Arthritis after Injury to a Single Joint, *M. J. Aust.,* 2: 309, 1948.
15 King, E. S. J., Physical Effort and Coronary Occlusion, *Proc. Med. Leg. Soc. Vic.,* 6: 55, 1954.
16 Whitehead, A. N., *Process and Reality, The Gifford Lectures,* 1927-1928, Harper Bros., New York, 1960, p. 11.
17 Billings, J. J., Traumatic Hysterical Conditions in Damages and Compensation Claims, *Proc. Med. Leg. Soc. Vic.,* 8: 1960.
18 Kay, M., "Psychological Overlay", *Lancet,* 1: 1134, 1960.
19 Chatelier, A., "Psychological Overlay", *Lancet,* 1: 1249, 1960.
20 Fitts, C. H., Pride and Prejudice, *Proc. Med. Leg. Soc. Vic.,* 5: 11, 1952.
21 Rolleston, H. D., *Life of Clifford Allbutt,* Macmillan, London, 1929.
22 Belisario, J. C., *Cancer of the Skin,* Butterworth, London, 1959.
23 Leighton, W. E. and Schmidtke, E. C., A Single Trauma as an Etiological Factor in Carcinoma, *J. Missouri Med. Ass.,* 37: 267, 1940 (Cited by Ellenbogen).[39]
24 Ewing, J., *Neoplastic Diseases,* pp. 1127, Saunders, Philadelphia, 1928, p. 117.
25 Medico-Legal: Death from Sarcoma Following Injury Compensable, Supreme Court of Appeals of Virginia, *J.A.M.A.,* 89: 2218, 1927.
26 Medico-Legal: Sarcoma of Bone Attributed to Trauma, Supreme Court Minnesota, *J.A.M.A.,* 96: 1101, 1931.
27 Medico-Legal: Sarcoma of Bone Attributed to Trauma, Supreme Court of Missouri, *J.A.M.A.,* 97: 1825, 1931.
28 Medico-Legal: Sarcoma of Hip in Relation to Trauma, *J.A.M.A.,* 109: 1660, 1937.
29 Medico-Legal: Sarcoma of the Sternum Attributed to Trauma, Supreme Court of Kansas, *J.A.M.A.,* 11: 200, 1938.
30 Woodward, W. C., Malignant Growth after a Single Trauma, *J.M.A.,* 126: 724, 1944.
31 Editorial: Workman's Compensation for Cancer Ascribed to Single Injury, *J.A.M.A.,* 125: 1043, 1944.
32 Stewart, F. J., Cancer Caused by Single Injury, *J.A.M.A.,* 126: 125, 1944.
33 Downing, J. G., Cancer of the Skin and Occupational Trauma, *J.A.M.A.,* 148: 245, 1952.
34 *Trauma and Disease,* pp. 903, Central Book Co., New York, 1959.
35 Kelly, M., Sensory and Motor Loss after Non-Neural Injuries, *Neurology,* (Minneapolis) 3: 327, 1953.
36 Moritz, A. R., Trauma, Stress and Coronary Thrombosis, *J.A.M.A.,* 156: 1306, 1954, *Trauma and Disease,*[34] 431.
37 Lewy, R., *Medical Bulletin,* No. 1 and No. 3, N.Y. State Dept. of Labour, 1933 (Cited in *Trauma and Disease,*[34] 149).
38 Seelig, M. G., Compensation in One Cancer Trauma, *J. Missouri M.A.,* 44: 27, 1947; *Trauma and Disease,*[34] 226.
39 Ellenbogen, L. S., Traumatic Cancer, *J. Med. Soc. New Jersey,* 51: 276, 1954. *Trauma and Disease,*[34] 219.
40 Demy, N., It's Nice Money if you Can Get it, *J. Med. Soc. New Jersey,* 50: 55, 1953 (Cited by Ellenbogen[39]).
41 Crile, G. The Cancer Problem: A Speculative Review of the Etiology, Natural History and Treatment of Cancer, *Persp. Biol. Med.,* 3: 358, 1960.

[42] Magana, R. D., The Relation of a Single Act of Trauma with Subsequent Malignancy; *Trauma and Disease,*[34] 123.
[43] Traylor, C. J., Trauma and Cancer: A Lawyer's Afterthought, *Trauma and Disease,*[34] 249.
[44] Knox, L. C., Trauma and Tumors, *Arch. Path.,* 7: 274, 1929 (Cited by Auster,[45] etc.).
[45] Auster, L. S., The Role of Trauma in Oncogenesis: A Juridical Consideration, *J.A.M.A.,* 175: 946, 1961.
[46] Wynder, E. L., Some Thoughts on the Causation of Chronic Disease, *J.A.M.A.,* 175: 997, 1961.
[47] McMeekin, R. P., Discussion of Paper by Phillips,[13] *Proc. Med. Leg. Soc. Vic.,* 4: 197, 1940.