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TRIBUNAL OF INQUIRY

(Into the Infection with HIV and Hepatitis C of Persons with Haemophilia and Related Matters)

PROCEEDINGS: TUESDAY 17th OCTOBER, 2000 – DAY 56

Mr John Finlay S.C. continued his examination of Prof. Ian Temperley.

Mr Finlay asked Prof. Temperley if, in his discussions with Dr O'Riordan during 1985, the issue of thrombogenicity had ever been discussed. Prof. Temperley said he was aware of an on-going risk of thrombogenicity arising from the use of factor IX, but it was not a huge issue with the BTSB and it had not been discussed with him. Prof. Temperley said when he eventually started using heat treated factor IX, he took the view that the danger of thrombogenicity was less than the danger in relation to infection. Prof. Temperley said treaters had to make a choice between one ill effect and the other, but he had no specific discussion on the issue of thrombogenicity with Dr O'Riordan that he could recall.

Mr Finlay referred Prof. Temperley to a letter from Dr Walsh on 25th June 1986, addressed to the Medical Officer in charge of hospital blood banks. The letter referred to a previous notice of 30th January which was issued from the BTSB, and said it was now strongly recommended that only heat treated factor IX concentrate be used in the therapy of haemophilia B when use of concentrate was indicated. The letter further advised that non-heat treated factor IX concentrate produced by the BTSB should be returned to Pelican House.

Mr Finlay asked Prof. Temperley had he a suspicion at this time that heat treated BTSB product may have been causing infection? Prof. Temperley agreed that this may have been the case. Mr Finlay asked Prof. Temperley was this the reason why he had issued an injunction to his own staff against using any BTSB factor IX. Prof. Temperley said, "This didn't trigger me. I didn't know there was any unheat-treated product out there. At this time I was worried about non-screened product".

Prof. Temperley said his concern around the use of non-screened product arose in respect of an anonymous telephone call he had received telling him that non-screened plasma was being used to produce factor IX at the BTSB. Prof. Temperley said that for the first time he was concerned that non-screened product was being used.

Prof. Temperley said that as the summer of 1986 progressed, it became apparent to him that BTSB factor IX was causing HIV infection. He was aware that BTSB product was being returned to Pelican House where it was being heat treated. Prof. Temperley said his concerns were that the product was being produced from unscreened donors, and giving this concern he did not know if at any time he had agreed with Dr Walsh to use

heat treated unscreened product coming from the BTSB. In any event, Prof. Temperley said there was no way he was going to use such a product.

Mr Finlay asked Prof. Temperley had there been any discussion about the standard or protocol being used for the heat treatment of BTSB product? Prof. Temperley said he did not know the heat treatment standard being applied. Prof. Temperley said he assumed that most forms of heat treatment were the same, and he didn't ask the question.
Prof. Temperley said he had no discussion concerning heat treatment in June of 1986 or in September. He reiterated that he thought heat treatment protocols were the same and pointed out that he was not a biochemist.

Mr Finlay pointed out that by September 1986 it was well known that heat treatment problems had arisen with the Armour product heated at 60 degrees for 30 hours. Mr Finlay said from his evidence Prof. Temperley appeared to entertain suspicions that BTSB factor IX heat treated was causing problems, and yet he said he had no discussions with the BTSB. Prof. Temperley said this was the case and Mr Finlay asked Prof. Temperley was he sure that this was the case.?

Mr Finlay referred Prof. Temperley to a memo by Dr Walsh of 31st October 1986 concerning the use of factor IX from Elstree. The memo noted that Prof. Temperley was prepared to take UK super heat treated on a 50:50 basis. Mr Finlay asked Prof. Temperley was he aware that the Elstree super heat-treated product heated at 80 degrees for 72 hours was good for non-A, non-B. Prof. Temperley said he was not aware of this at the time. Mr Finlay asked Prof. Temperley was he sure of this particular observation. At this time the BTSB had information that the product which had been in use for the previous 12 months had given satisfactory results with respect to non-A, non-B.

Mr Finlay asked Prof. Temperley did he know that low heat was not good for non-A, non-B. Prof. Temperley said he was not aware of this. Again Mr Finlay asked him was he sure of that? Mr Finlay pointed out to Prof. Temperley that during this time he was living in an environment dealing with HIV infection. Mr Finlay asked the professor was he not aware from the medical literature in 1984 that an adequate non-A non-B viral inactivation technique was available? Prof. Temperley said he had not read this medical literature concerning non-A, non-B. He was not motivated by non-A, non-B at this time.

Mr Finlay asked Prof. Temperley was it not common knowledge at this time that 60 degrees was ineffective for the viral inactivation of non-A, non-B, this time being 1986? Mr Finlay asked Prof. Temperley did Dr Walsh not make him so aware? Prof. Temperley said this was not the case. With respect to Dr Walsh's memo which contained the observation that Prof. Temperley thought 20p per unit was too high for the Elstree super heat-treated product, Prof. Temperley said he did not know where this discussion had taken place with Dr Walsh and it may have simply been a glancing remark.

Mr Finlay then turned to the issue of Armour A28306. It was noted that earlier in the Tribunal, that this was a likely source of infection of a person with Haemophilia A with HIV. Prof. Temperley agreed that the Armour product was the likely source of infection,

that the Armour dry heat treated product A28306 was an Armour factor VIII product which caused late HIV seroconversion.

In May 1987 Prof. Temperley was appointed to the board of the BTSB. In negotiating the Armour contract in 1987, Prof. Temperley insisted that the heat treatment regime applied to the product be 68 degrees for 72 hours. In the course of the negotiations for the Armour contract it became apparent that, while there was no problem with factor VIII, Armour had no licence for factor IX. It was agreed that the named patient basis would be used to overcome this difficulty. Prof. Temperley could not fully recall how he came to the decision that the product should be heat treated at 68 degrees for 72 hours. He may have been influenced by a number of different sources, however Prof. Temperley said he arrived at this decision and it seemed to him that it would certainly get rid of HIV.

Prof. Temperley agreed that by June of 1987 it was well established that untreated patients should be treated with a special product such as the second generation products then becoming available. Only the latest products would be used for untreated patients and in this way it was hoped to protect them from exposure to non-A, non-B hepatitis. Prof. Temperley said it certainly would have been established at the time that virgin patients should only get products which were known to be free of NANB infection. If a virgin patients became infected the product responsible could then be identified.

With respect to the Armour contract the board considered the introduction of ALT and hepatitis B core testing. It was known that dry heat treatment was not effective against NANB, but Prof. Temperley said he was still concerned with HIV. Non-A, non-B and increased liver functions were not seen as a significant problem in 1987, said Prof. Temperley. The treaters were determined, however, that there would be no more HIV infection.

In 1987 the primary consideration, said Prof. Temperley, was HIV. He felt this was the product, ie. Armour, that the BTSB should use at this time. Prof. Temperley said that in 1987 NANB was seen as a minor problem. Prof. Temperley said he realised that NANB was recognised as a problem but he was not familiar with the natural history of the disease. NANB was seen as a relatively minor condition at this time.

Mr Finlay referred Prof. Temperley to a 1985 publication by Hay, Preston and others which pointed out that NANB could develop into serious liver disease. Prof. Temperley said that he had read this article since, however he said that Preston was on the periphery of these events.

Mr Finlay pointed out that in 1987 the view appeared to be changing on NANB. However, Prof. Temperley said that, while it was true there may be one or two cases, it was in a way like haemophilia and AIDS; it was estimated that one in 1,000 may get it, and it would be a relatively non-serious problem. Prof. Temperley said the hospitals were seriously affected by treating AIDS patients. This was put above all else.

Mr Finlay asked Prof. Temperley had he any contact with the UK and Scotland at this time. Prof. Temperley said he had a vague memory of discussing 80 degrees for 72 hours and the fact that no cases of NANB emerged. Prof. Temperley said that in 1987 BPL were still discussing its results, however Mr Finlay said that after two years without an infection what better proof could be obtained that the product was not infective for NANB. Prof. Temperley said this was not his understanding of the issue at the time.

In 1987 solvent detergent viral inactivation became available. Prof. Temperley said he was aware that this product was developed at the New York Blood Center but it had not been brought to his attention at the time.

Mr Finlay referred Prof. Temperley to his letter to Mr Keyes of 14th June 1988. The letter was written by Prof. Temperley as he was unable to attend the board meeting which had gathered to discuss the Armour contract. In the letter Prof. Temperley sets out his views concerning the wisdom of continuing with an Armour heat treated product into 1989. Prof. Temperley said he had discussions with other experts. He pointed out that the Armour product was a first generation product heat treated for 72 hours at 68 degrees, and as such belonged to a group which was being removed from world markets because of previous HIV disasters, and also because dry heat treatment seemed inadequate to destroy the non-A, non-B hepatitis virus. Prof. Temperley also stated that this product was being withdrawn because there are likely to be commercial considerations. The letter went on to inform the board that pasteurised product, or National Health Service super heat treated product, had been given adequate trials, however the former, being available commercially, would be used by the NHTC for infants and young children who had not come in contact with blood products.

Mr Finlay put it to Prof. Temperley that he would appear to be saying in his letter that wet heat-treated and super heat treated had been given adequate trials, and presumably by omission he was saying that solvent detergent had not yet received adequate trials. Prof. Temperley said he would not agree with this. While he agreed that Haemate P had adequate trials, NHS was still in the trial period.

Mr Finlay and Prof. Temperley then discussed the status of the NHS product as to whether or not it had emerged from a trial period. Mr Finlay said that three years of usage without any difficulty and with a clear record with respect to NANB would seem to indicate that the trial was a mere technicality. Prof. Temperley insisted that the product had not yet been certified for use, and as such was still under trial.

Prof. Temperley's letter went on to say that the problem with commercially available second generation products is the price. Pasteurised products are at least twice the price of dry heated products. Prof. Temperley agreed that his information on this was in the nature of generalised information. The letter continued that in the present period of financial stringency the hospitals could not be expected to meet a doubling of the cost of concentrates in 1989. Some balance would have to be struck between the cost and the infection dangers associated with blood products. The letter noted that virtually all treated haemophiliacs have had NANB hepatitis.

Mr Finlay put it to Prof. Temperley that the costing referred to here was a cost to the hospitals, not the BTSB. Prof. Temperley agreed this was the case. Prof. Temperley agreed he had not consulted the department in advance of making this statement. However he said he had had a battle of attrition in relation to costs, even in the maintenance of the haemophilia centre itself. Prof. Temperley said in 1987 the hospital threatened to close the haematology unit and these were the pressures he was under to ensure he kept within limits as regards costing. With respect to Prof. Temperley's statement that virtually all treated haemophiliacs have had non-A, non-B, Mr Finlay asked Prof. Temperley what was his means of knowledge that such was the case. Prof. Temperley said he had noted in the treatment of people with haemophilia, raised liver enzymes in virtually everybody who had been treated at the unit. Prof. Temperley said that all multi-transfused patients were almost likely to be infected with non-A, non-B hepatitis. Mr Finlay asked Prof. Temperley, was it the case that at this time there was no test for non-A, non-B hepatitis.? Prof. Temperley agreed that this was the case. Mr Finlay asked Prof. Temperley, was it the implication of his observation that all patients had had non-A, non-B hepatitis that any further exposure to non-A, non-B hepatitis would not produce an additional risk.? Prof. Temperely agreed that this was the implication of his statement. Prof. Temperley said this is what he thought at the time.

Prof. Temperley said his advice at the time was based on providing a solution to a problem. It may not have been suitable but it was practical. Mr Finlay asked him did he still hold this view and he said no, he would not agree with this concept now. But, insisted Prof. Temperley, it was valid under limited circumstances of the time.

At the time, said Professor Temperley, he would not have advised the use of Monoclate as it had not been sufficiently proven with respect to HIV. Further, Monlclate was heat treated to 60 degrees for 30 hours, and this had been a heat treatment associated with HIV seroconversion in the past. Prof. Temperley said HIV was the main issue for him.

Mr Finlay asked Prof. Temperley, could he have treated patients with super heat treated or solvent detergent product at the time. Prof. Temperley said his difficulty was getting an answer which could address all the difficulties.

With respect to the re-infection of people with NANB, Prof. Temperley said he knows now this is the case but did not know that then. At the time his judgement was that all multi-transfused patients were NANB. He said philosophically it may be the case that one or two patients were not infected.

Mr Finlay asked Prof. Temperley, did his letter contain any information regarding people with haemophilia B? Prof. Temperley said the board was thinking of the provision of factor VIII, not factor IX. Factor IX was not discussed at this meeting and was not addressed in the letter. He said later in the year factor IX may have been discussed. However, such a discussion is not recorded. Mr Finlay asked Prof. Temperley, was it possible to make arrangements for factor IX. Prof. Temperley said, generally speaking they were shorter on options for factor IX and all the concentration was on factor VIII.

Generally speaking production of factor IX research was following two years behind that of factor VIII.

Prof. Temperley agreed that NHS factor IX would have provided a safe factor IX regime with respect to NANB. However, he didn't think of this at the time. In the event no treatment regime was put in place for haemophilia B. Prof. Temperley said this was because he did not know of a suitable product. However, he agreed that NHS factor IX had escaped his attention, yet the product was available.

In 1989 the BTSB commenced its negotiations with Octapharma for the provision of solvent detergent factor VIII and factor IX. Prof. Temperley, Mr Hanratty and others travelled to Norway to visit Octapharma. Prof. Temperley said the Octapharma solvent detergent contract could not be imposed in 1989 as the BTSB could not simply stop the arrangement with Armour; it could not be done quickly.

With reference to the I.H.S. campaign for recompense in 1989, which was described as unfairly blaming BTSB product for causing infection at the board meeting of the BTSB on the 15th February 1989, Mr Finlay asked Prof. Temperley was this not an unfair observation, given that it was known that BTSB product had in fact caused HIV seroconversion among patients with haemophilia B? Prof. Temperley said he did not know whether he had said something about it at the board, as they were now dependent upon the minutes. He may have said something which had not been minuted.

Mr Finlay referred Prof. Temperley to the second edition of the UK Centre Directors information booklet on blood products. It was noted that anecdotal evidence had been offered that Haemate P was transmitting hepatitis B and non-A, non-B. Prof. Temperley said this could have been a fault in a particular product. It may have been an isolated problem and nothing was perfect when using plasma.

PROCEEDINGS: WEDNESDAY 18th OCTOBER, 2000 – DAY 57

Mr John Finlay S.C. continued his examination of Prof. Temperley. Mr Finlay discussed the setting up of the Octapharma contract and the supply of solvent detergent factor VIII and factor IX from Octapharma from 1989 until 1992 in relation to discrepancies between the numbers of people infected. Prof. Temperley said the later figures available compiled after the commencement of litigation were more reliable. Prof. Temperley said 459 people had been tested for Hepatitis C virus, and 189 had proved positive. It was accepted, however, that there were 105 people infected with HIV. It was unlikely that there were any HIV infections which had gone unrecorded. With respect to infected children, Prof. Temperley said four children with haemophilia B had been infected with Hepatitis C. One adult had also been infected with Hepatitis C.

Prof. Temperley was then cross-examined by Mr Raymond Bradley for the Irish Haemophilia Society.

Prof. Temperley agreed with Mr Bradley that the thesis for his Medical Doctorate was the precipitation of fibrinogen in heparin. Prof. Temperley said he had access to all current medical journals, including the *British Medical Journal* and *The Lancet* and could have the *MMWR* on request.

The fundamental difference between himself and Dr O'Riordan., said Prof. Temperley, was that he was a medical doctor and was clinically and hospital lab oriented, whereas Dr O'Riordan was a blood transfusion expert. Prof. Temperley said he had no training in blood transfusion at all. Prof. Temperley said he was aware of Dr O'Riordan's reservations concerning the importation of U.S. blood products, and was aware of his opinion on plasma derived from skid row donors.

Prof. Temperley said Dr O'Riordan was responsible for products coming from the BTSB. Prof. Temperley said he was not responsible for these products. Prof. Temperley said he was a relatively free agent and had a degree of independence in relation to which product he could use. However, at that time not much choice existed with respect to factor concentrates. Hemofil was the product used in the 1970's.

Prof. Temperley said a commercial relationship existed between himself and Dr O'Riordan, the BTSB was in the market place, said Prof. Temperley, and the hospitals had to maintain some independence from them. In discussions with Dr O'Riordan Prof. Temperley said Dr O'Riordan was the older man, and he would bring his expertise in transfusion to these professional discussions.

Prof. Temperley said he did not think it was true that the BTSB was a warehouse for medical products. The BTSB had a responsibility for the product it put into circulation. Prof. Temperley said St. James' Hospital and the BTSB both imported product. Prof. Temperley said he anticipated that the BTSB would exercise some form of expertise in respect of the products it was providing.

With regard to scientific meetings of the BTSB which he occasionally attended, Prof. Temperley said an external consultant was available to the scientific meeting and attended the meetings, he could just not remember who it was. Prof. Temperley said the external consultant was from the Mater Hospital.

With regards to the responsibilities of the external consultant, Prof. Temperley said he always wondered about that. He said the Scientific Committee meetings were informal. Prof. Temperley said matters would be discussed both at the meeting and later. He would discuss matters with different individuals such as Mr Hanratty, but he [Temperley] did not have a clear understanding of how the BTSB operated.

In response to a question as to who had responsibility for blood products, Prof. Temperley said this responsibility rested with Dr O'Riordan or Mr Hanratty.

With respect to the BTSB's home production of factor VIII, Prof. Temperley agreed there was little progress during the 1978-81 period. Prof. Temperley said it was a difficult task to fractionate factor VIII concentrate. Manpower and equipment was required. Finance was also required. During the 1978-81 period there was little progress on the production of intermediate concentrate, apart from the emergence of freeze-dried cryo. Prof. Temperley said, while freeze-dried cryo was brought into production, there was little progress on manufacture of an intermediate product from the BTSB. Little or no information was forthcoming about such a project at the time.

With respect to hepatitis B, Prof. Temperley said outbreaks of hepatitis B would occur every two years or so, and while screening was conducted, it was not 100 per cent effective due to the hepatitis B window period.

With respect to hepatitis B presenting in patients on factor concentrates, Prof. Temperley said Hepatitis B indicated that the donor type transmitting hepatitis B was more likely to be found in the donor pool for concentrates. Prof. Temperley said the greater the exposure of an individual to concentrates, the more likely it was that he would develop hepatitis. The risk of hepatitis arising from paid donors motivated Dr O'Riordan's skid row type comments. Prof. Temperley said Dr O'Riordan may have had this view, but Dr O'Riordan was also selling his own product and this may have given rise to some of his opinions on the virtues of imported product. A dual problem existed for Dr O'Riordan, said Prof. Temperley. He had a concern for safety, but he also had a concern to sell the products.

Mr Bradley asked Prof. Temperley who he would notify if a case of hepatitis came to his attention. Prof. Temperley said he would notify the company and also inform Dr O'Riordan. Upon informing a company of a positive case of hepatitis B, the companies would usually withdraw the product, said Prof. Temperley.

Mr Bradley asked Prof. Temperley that, in the event of a recall, was there an alternative to using factor concentrates. Prof. Temperley said the alternative did not do the job of concentrates.

With respect to the price paid for factor concentrates in mid 1978 it was decided to re-examine the policy of commercial factor VIII. This message was contained in a letter from Prof. Temperley to Dr O'Riordan, and was motivated by the discovery of the fact that similar concentrate has been sold in Belfast at 10p, whereas the concentrate in Dublin is being sold at 15p. Prof. Temperley said Dr O'Riordan was annoyed at the mention of the policy of using factor concentrates. Prof. Temperley agreed that Dr O'Riordan was consistent in his concern about using concentrates. However, the policy of importation was not re-examined at that time.

With respect to a report prepared for the Council of Europe, to which Prof. Temperley contributed along with colleagues from Finland and Belgium, Prof. Temperley said it would not be appropriate to compare the Irish experience with that of Finland. One would have to compare all the European states with Ireland, not just Finland and Belgium. Prof. Temperley said at the time it was felt that concentrates were a better option for home therapy. Mr Bradley pointed out that from 1971 to 1980, there were two deaths from haemophilia. Prof. Temperley said at this time treatment was adequate. There was also a question concerning the quality of life, not just the quantity. Prof. Temperley said with concentrate the quality of life improved dramatically. Bleeding was controlled and the humour at the time was that people with haemophilia could actually go skiing.

With regard to the heparin project conducted by Mr Hanratty, Prof. Temperley said in the first instance he was led to believe that it was in fact a realistic proposition and would go into production. By 1983 it began to look like this product would not become available. Prof. Temperley said in reality it was always in doubt that the BTSB would be able to produce enough factor VIII. Prof. Temperley said he was not familiar with the Gail Rock literature or method of producing factor VIII. Prof. Temperley said the heparin project was Mr Hanratty's project. He thought he could repeat what had been illustrated in the literature by Gail Rock and he decided to go ahead and do it as a project. Prof. Temperley said Mr Hanratty employed his own skills in progressing this matter. He got some help, but he was the main mover. The big problem for Mr Hanratty was to move from a trial product to production. Prof. Temperley said it was a huge step from producing factor VIII in a lab to factory type production.

PROCEEDINGS: THURSDAY 19th OCTOBER, 2000 – DAY 58

Mr Raymond Bradley for the Irish Haemophilia Society continued his cross-examination of Prof. Ian Temperley.

Mr Bradley referred Prof. Temperley to a minute of the BTSB Scientific meeting of June 9th 1983. A note of the meeting taken by Mr Cann, indicates "use more cryo pending intermediate concentrate". Mr Bradley, referring to previous evidence by Dr Walsh, asked Prof. Temperley did any member of the Blood Transfusion Service Board indicate to him that the use of cryoprecipitate should be encouraged at that time. Prof. Temperley said he did not remember if this was the case, but it would be reasonable to say that the BTSB may have pushed the use of cryo or freeze-dried cryoprecipitate at this time.

Mr Bradley asked Prof. Temperley, against a background of AIDS, would he have expected the BTSB to have contacted him? Prof. Temperley agreed that, given the considerations at the time, one would have anticipated that the BTSB would have contacted him.

Mr Bradley then referred Prof. Temperley to a letter from Travenol Laboratories to Dr O'Riordan. The letter indicates that, at a press conference in Washington on 24th May 1983, it was indicated by the U.S. health authorities that they had approved the heat treatment of blood factors required by haemophiliacs. Prof. Temperley agreed that he may have received a similar letter at around that time, however no discussion ensued between Prof. Temperley and the BTSB. Prof. Temperley said that this document was of interest but it was one of a number of documents coming through at that time concerning AIDS, and he noted it, thought about it and filed it.

Mr Bradley put it to Prof. Temperley that it was clear at this time, in mid-1984, that a lot of manufacturers were considering heat treatment for their blood factors. Prof. Temperley said he was not quite sure how many other manufacturers actually sent a letter, nor did he remember them advertising their wares in relation to heat treatment. He said it was his recollection that in late 1984 Cutter introduced heat treatment, but he did not recall anybody else doing it.

Mr Bradley asked Prof. Temperley would it be unusual to get a letter making this type of claim? Prof. Temperley said it would but noted that nobody reacted immediately. It took time for any message to be received. Mr Bradley asked Prof. Temperley would he accept that in mid 1984 there was a balance to be struck between conclusive scientific evidence and potential risk? Prof. Temperley said both aspects would have to be taken into account. Prof. Temperley said he had no conclusive evidence available to him concerning heat treatment in 1984. The virus was not isolated until 1984 so it would have been difficult to get any positive scientific evidence that heat treatment was effective.

Mr Bradley then referred Prof. Temperley to a scientific meeting of the BTSB which he attended in October 1983. At this meeting it was noted that hepatitis B surface antigen was under discussion.

Mr Bradley put it to Prof. Temperley that hepatitis B surface antigen is a test that is used in circumstances where somebody has recently become hepatitis B infected. Prof. Temperley agreed that that was the case. Mr Bradley put it to Prof. Temperley that, as the products were screened for hepatitis B and the frequency of hepatitis B was causing concern, then the pool from which the plasma was drawn would be a high risk donor pool for hepatitis B? Prof. Temperley said that at the meeting of October 1983, the issue of hepatitis B and AIDS was not related.

Mr Bradley asked Prof. Temperley would he accept that in 1983, when hepatitis B surface antigen was under discussion at the scientific meeting of the BTSB, it was considered that hepatitis B was associated with AIDS. Prof. Temperley said "it may well have been, but in my mind it wasn't associated with it".

Mr Bradley asked Prof. Temperley, in relation to the scientific meeting, did he recollect why hepatitis B surface antigen was under discussion. Prof. Temperley said he could not remember what was under discussion at that particular meeting, but he could understand the point being made now. Mr Bradley asked Prof. Temperley if at the time the only method of establishing whether any person was likely to develop AIDS was to look for surrogate markers. Prof. Temperley said this was true, but it may have come to his notice much later in that year. Prof. Temperley said he was not sure that he was aware of this particular surrogate marker at the time of the meeting. He said Mr Bradley was assuming more of him than he could actually deliver. Prof. Temperley said he did not know why that particular meeting would be discussing the causes of deaths among people with haemophilia. He did not agree, from the contents of the note, that it was a possible AIDS-related death.

Mr Bradley asked Prof. Temperley would he accept that an increased incidence of hepatitis B surface antigen positive results would indicate that screened donors were donating in the window period, and hepatitis B surface antigen indicated a period of acute infection? Prof. Temperley agreed with this proposition. Mr Bradley asked Prof. Temperley would he agree that a hepatitis B positive recipient in such circumstances would have received plasma from a factor concentrate at high risk for hepatitis B. Prof. Temperley agreed that this was the case.

Mr Bradley put it to Prof. Temperley would he accept at this time, ie. 1984, that there was a possible link between hepatitis B and AIDS. The Tribunal objected to this question. Mr Bradley asked Prof. Temperley, was AIDS discussed at the meeting. Prof. Temperley said he could not remember.

Mr Bradley then turned to the issue of product selectionfor 1984. What considerations did Mr Hanratty, Dr Cotter and Professor Temperley take into account in relation to the selection of factor concentrates derived from U.S. plasma for use in that year? Prof.

Temperley said the criteria were effectiveness, cost and availability - all would have been considered. In relation to safety issues, Mr Bradley asked Prof. Temperley what would have been taken into consideration in the lead-up to 1984 in his discussions with Mr Hanratty and Dr Cotter. Prof. Temperley said he could not remember. He doubted that heat treatment would have been an issue. Prof. Temperley said heat treatment would not have been dealt with at that particular time as it was an innovation. It was only towards the end of 1984 that heat treatment became a requirement.

Mr Bradley asked in relation to the screening issues, would hepatitis B surrogate testing have been given consideration? Prof. Temperley said this was not a major consideration in his mind, as he did not have any concern about the possibility that hepatitis B was related to AIDS. Prof. Temperley said he suspected that surrogate testing was not an issue.

When the Tribunal resumed after lunch, Mr Bradley made an application pertaining to HIV factor IX infections. He noted that as Prof. Temperley would return to deliver evidence pertaining to this issue, the I.H.S. wished to reserve its position until all the direct evidence is complete pertaining to factor IX infections. It was agreed that Prof. Temperley would not be examined in this issue until all the direct evidence, including that of Mrs. Cunningham, had been heard.

Mr Bradley then turned to the issue of Armour batch A28306 with Prof. Temperley. Mr Bradley asked Prof. Temperley had this batch of Armour factor VIII unscreened heat-treated product caused infection in relation to a child at the National Children's Hospital? Mr Bradley referred Prof. Temperley to the evidence of Dr Lawlor, where she was asked did she know how Armour A28306 found its way back into St. James' Hospital? Dr Lawlor had informed the Tribunal that she assumed A28306 was returned to the distributors from the BTSB, and that the distributors re-issued it to St. James'. But she emphasised that this was an assumption on her part. A28306 appeared to have been recalled by Armour, heat treated and reissued. However, it was from untested donors. Mr Bradley asked Prof. Temperley who was responsible for receiving this particular product, was it the BTSB or was St. James' directly responsible, having re-ordered the product? Prof. Temperley said it would appear from the evidence that St. James' ordered the product. St. James' had placed an order and the product had been delivered to the hospital. Given that this was the case, it would appear that this matter is for investigation under Phase 3 of the Tribunal's Inquiry.

With respect to the Armour Company, Prof. Temperley said that with respect to batch A28306 he wrote to Armour in January 1987, but did not receive a reply from the company. Mr Bradley asked Prof. Temperley did he have any concern in relation to the company? Prof. Temperley said this appeared to have been an isolated incident.

With reference to the Armour contract to fractionate BTSB plasma Mr Bradley asked Prof. Temperley, with regard to the sequence of events and various changes which occurred in the contract, was Armour a reputable company? Prof. Temperley said that he clearly had a good view of Armour in 1985 and some parts of 1986. Subsequent events

may have coloured his opinion of the company. Prof. Temperley said his view of the company varied with experience.

With respect to the indemnity sought by Armour in 1987, Prof. Temperley said he thought this was very excessive at the time.

With respect to the letter from Prof. Temperley to the board of the BTSB and to Mr Keyes concerning the Armour contract, Mr Bradley asked Prof. Temperley had that letter been put to any other use that he was aware of. Prof. Temperley said he was only aware that it was discussed by the board.

With regards to Hepatitis C infection, Mr Bradley referred Prof. Temperley to a chart prepared by Dr Lawlor. Mr Bradley asked Prof. Temperley, with reference to the chart if a person had a positive antibody test, would that indicate they had been exposed to infected product at some time in the past. The children whose data are contained in the chart are those born after 1st January 1986. Prof. Temperley said he regarded these tests as positive in indicating infection with Hepatitis C.

Prof. Temperley was then cross-examined by Mr Charles Meenan S.C. for Dr Walsh, Dr Egan and Dr Joan Power. Prof. Temperley told Mr Meenan that he did not agree that there was a six month lead in time for the introduction of heat treated product. Prof. Temperley also said he did not agree with Dr Walsh to use unscreened heat treated BTSB factor IX.

Prof. Temperley was then cross-examined on behalf of the NDAB by Mr Aston. Mr Aston asked Prof. Temperley was there a discrepancy between the NHSCC policy and the practice in selection of products, in that the NDAB was not notified. Prof. Temperley agreed that initial consultation took place between the treating doctors and a recommendation then went to the BTSB. The NDAB did not appear to be involved.

Prof. Temperley was then cross-examined on behalf of the Department of Health by Mr Ian Brennan. Mr Brennan asked Prof. Temperley with regards to self sufficiency, was it the case that Dr O'Riordan talked about it and Mr Keyes put the stamp of the Department on it? Mr Brennan put it to Prof. Temperley that the whole idea of self sufficiency was geared towards a safe product. If there was a choice between the product safety and self sufficiency the BTSB would not be bound by the concepts of self sufficiency? Prof. Temperley agreed with Mr Brennan that safety was of paramount consideration.

Prof. Temperley was then cross-examined by Mr Michael McGrath for the BTSB. Mr McGrath put it to Prof. Temperley that the importation of concentrates from the U.S. in the 1970's were conducted under circumstances where reputable pharmaceutical companies were employed and FDA licences were available for the products. Prof. Temperley agreed with this. Mr McGrath put it to Prof. Temperley that the BTSB took these facts into account in supplying products. Prof. Temperley agreed that this was the case, and also that the BTSB tried to meet the requirements of the treaters and tried to supply the best product. Mr McGrath also noted that in 1978 to 1981 there was no

progress in the production of home products. Mr McGrath also put it to Prof. Temperley that Mr Hanratty's heparin project progressed to the stage where clinical trials had been conducted, and a degree of optimism existed as to the potential of the project to supply factor VIII requirements.

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Mr Michael McGrath S.C. for the BTSB concluded his cross-examination of Prof. Temperley.

Prof. Temperley was then cross-examined by Mr O'Brolchain for the Southern Health Board. With respect to selecting blood products, Mr O'Brolchain put it to Prof. Temperley that Dr Paule Cotter wouldn't have decided between one product and the other. Prof. Temperley said he assumed that she had been involved in product selection. Prof. Temperley said he assumed all along that she and he met at various times and these matters would be discussed. Mr O'Brolchain said Dr Cotter would confirm that matters were discussed, but that the recommendation pursuant to the selection was presented to her as a suitable product and she would agree with that. Mr O'Brolchain said that Dr Cotter would say she accepted the recommendation made to her. Her name would go with the recommendation, but the actual selection of the product had been effectively taken before the recommendation was made. Prof. Temperley said that, while he may have taken a lead in the selection of products, he was sure he brought Dr Cotter with him in any discussion they had on the subject.

Mr O'Brolchain then reserved his position in respect of Phase 3 of the investigation, as did the representatives of St. James' Hospital. The Adelaide & Meath Hospital had no questions.

Prof. Temperley was then examined by his own counsel, Mr McGovern.

With respect to Prof. Temperley's role in the BTSB before he joined the board in May 1987 Prof. Temperley said he was not part of the BTSB's decision-making team at this time. Prof. Temperley agreed that the BTSB would have received advice from a number of different sources. Prof. Temperley said he had nothing to do with advice regarding heat treatment, except to say that he wanted heat treated product supplied.

With respect to the period May 1985 to November 1985 Prof. Temperley agreed that he was on sabbatical at the Royal Free Hospital in London during this period. During this time Dr Helena Daly visited him in London and expressed her unhappiness about a meeting she had had with the BTSB. Prof. Temperley said that at this time he was of the opinion that he had communicated to the BTSB in March 1985 concerning the heat treatment of factor IX. Prof. Temperley said he thought he had written to the BTSB at that time, but agreed that no such letter could be found.

Prof. Temperley said he thought he had expressed his views in writing to Dr O'Riordan. Prof. Temperley said he may have misled Dr Daly when he said he had written to Dr O'Riordan in March of 1985. However, he was anxious at all times that the BTSB provide heat treated product, and there was no doubt of his views regarding heat treatment at the time.

Prof. Temperley said that following his meeting with Dr Daly in London, he wrote a strong letter to the BTSB. He was very surprised that heat treatment had not been undertaken by that time. Prof. Temperley said he was quite upset and amazed that concentrate wasn't being heat treated by August 1985. Prof. Temperley indicated in the letter that November 1st was now the deadline set for the introduction of heat treating factor IX. Prof. Temperley said that in retrospect he should have insisted that heat treatment be introduced immediately. Prof. Temperley said he did not know about the letter which came from Dr Craske in June, on the question of the need for heat treatment of factor IX concentrates. Prof. Temperley said, given the business of his sabbatical, he had lost touch with the on-going problems relating to haemophilia and heat treatment. Prof. Temperley said the November date for heat treatment was to allow a lead-in time. Prof. Temperley said he did not discuss with anyone how long heat treatment would take. He had no technical knowledge of what was required for heat treatment, and he didn't know how difficult it would be. Prof. Temperley said he understood that this was a matter of technical knowledge at the disposal of the BTSB, and he thought that throughout this period they would have been in touch with their colleagues in the UK and Scotland. Prof. Temperley said fractionation was a BTSB function.

With respect to the letter of June 14th 1988 to Mr Keyes and the BTSB from Prof. Temperley on the issue of the Armour contract, Mr McGovern asked Prof. Temperley what exactly was the state of knowledge in the medical profession in Ireland with regards to non-A, non-B hepatitis at that stage. Prof. Temperley said non-A, non-B hepatitis at this point was regarded as a less serious problem, certainly with respect to AIDS it was less serious. It was also less serious with respect to bleeding episodes in people with haemophilia.

With respect to the cost of the Armour product, Mr McGovern asked Prof. Temperley to explain his position less there be any concern about the question of putting patient safety in a subordinate position to cost.

Mr McGovern said he wanted to know what problems faced the BTSB and what problems faced Prof. Temperley advising the BTSB at this time. Prof. Temperley said that the issue developed between using BTSB Armour product and the question as to whether one should use Monoclate. With respect to Monoclate Prof. Temperley said the heat treatment of Monoclate was 60 degrees by 30 hours. This was a heat treatment protocol associated with previous cases of HIV seroconversions. He therefore felt this product did not necessarily provide an advantage. Prof. Temperley also considered the relative purity of the product. In the event he did not see how the alternative product was an advantage. In these circumstances Prof. Temperley said the question of price came in as to whether there were any advantages in paying extra for Monoclate. Prof. Temperley acknowledged that this rationale had not emerged in his letter but it was, he said, very much in his mind when he was thinking about the issue.

Prof. Temperley said that as a big user of government money, it was always his concern to ensure that no unnecessary expenditure was incurred. Prof. Temperley said while no-one was ever refused treatment at the National Haemophilia Treatment Centre, he had

had to fight hard to ensure that money was available for the products required. 1987 was a particularly bleak year in terms of finance, said Prof. Temperley. In 1987 the Haematology Centre was threatened with closure and he was put to the pin of his collar to keep going. The blood products bill was huge and the Eastern Health Board and other health boards were refusing to pay for factor VIII and factor IX concentrates used for home therapy. Prof. Temperley said he was under pressure to keep the costs of treatment to a minimum, and while this problem was solved by the Department of Health paying the bill, a very difficult time financially was experienced by all concerned and he felt that burden very strongly.

Prof. Temperley said that on his appointment to the board he walked himself into it. He had complained about lack of representation and could not turn down the position when it was offered to him. Prof. Temperley said the advice he would now give to anyone in a similar position would be not to go on the board, particularly in the way of being an advisor on the board. Prof. Temperley said that prior to 1987 it could be seen from the evidence that he had fought for the interests of people with haemophilia. He was a fighter on the outside trying to ensure that the BTSB provided a service. On joining the board of the BTSB Prof. Temperley said he had a sense of responsibility for both the BTSB and the National Haemophilia Treatment Centre. As such, he had a different perspective, and it would have been preferable if he had stayed on the outside.

Mr John Cann

Mr Gerard Durcan S.C. for the Tribunal then examined Mr John Cann. Mr Cann is a former chief technical officer of the BTSB. As such, it was his job to supervise all laboratory functions. Mr Cann said while this was his responsibility he acted in the capacity of administrator. Mr Sean Hanratty, senior technical officer, reported to Mr Cann. Mr Cann said Mr Hanratty was in charge of the components department, and Ms. Cunningham was in charge of the fractionation department. Mr Cann said Ms. Cunningham reported directly to him and sometimes to the medical officers, depending on the speciality. Mr Cann said he in turn reported to the national director, Dr O'Riordan. Mr Cann said he attended meetings within the BTSB. He attended a staff meeting each Monday morning and attended the scientific meeting from time to time.

Mr Durcan referred Mr Cann to a letter of 16th April 1974 from Travenol Laboratories to Dr O'Riordan. The letter suggests that the BTSB should hold a stock of Hemofil at an agreed level. In exchange for this service Travenol would offer a service fee amounting to 10 per cent of the selling price of Hemofil. The selling price of the product is suggested at 12p per international activity unit. Mr Cann said this was a normal handling charge designed to cover expenses of packaging and storing distribution and the medical director's responsibility for the product.

Mr Cann agreed that the board got a particular product at a particular price, added on 10 per cent and then sold it on on that basis. Mr Durcan asked Mr Cann did Dr O'Riordan have any concern about the type of product being imported by the BTSB?

Mr Cann said before the days of heat treatment we were always concerned about the importation of products from overseas. The reason for this was that it was generally known by the BTSB and the medical profession that there was a risk from the type of donors that these product may have been obtained from. Mr Cann said there was concern over the type of product being imported, and it was realised that local product had advantages over imported products.

Mr Durcan asked Mr Cann, what was the concern in regard to the introduction of foreign products? Mr Cann said there was concern mainly about where donor procurement for these products was taking place. Were these matters discussed among the staff at the BTSB at the time? asked Mr Durcan. Mr Cann agreed that this would have been the case. Mr Cann said this matter would have been discussed mainly among the scientific and medical staff. Mr Cann said the BTSB knew that some of these donor clinics were held in skid row areas, and before the American authorities controlled the use of paid donations these donors were being paid for their blood. Mr Cann said this was common knowledge at the time. Mr Cann said the fact that they were paid for blood meant that anyone could go in and give his or her blood. Mr Cann said it was known that these products carried a risk of infection. MrCann also said that at this time, in 1977, non-A, non-B was seen as a serious matter. It was seen as an illness but it was not an immediate problem for the BTSB.

In June 1981 the BTSB future development committee set out the advantages of home product. It was noted that this product could be produced using well-established procedures. Mr Cann agreed that this may have been the Gail Rock method. Mr Cann said, given appropriate equipment, the BTSB could have supplied up to 80 per cent of the factor VIII market. Mr Cann also said that the advantages of the local product would outweigh any potential cost increase. The board was optimistic during this time that it could produce its own factor VIII said Mr Cann. This was particularly the case following the report by Mr Hanratty and Prof. Temperley.

In October 1981 home production for the BTSB consisted of Mr Hanratty's project. Mr Cann said the board was optimistic that BTSB factor VIII could be produced using this methodology. Mr Durcan asked Mr Cann what steps were being taken to progress such production? Mr Cann said that Mr Hanratty was doing trials on a laboratory basis. Mr Cann said the BTSB scientific meetings at this time believed that Mr Hanratty's project would result in factor VIII production.

In February 1982 Mr Hanratty announced the success of his own product. Mr Durcan asked Mr Cann, apart from the home product produced by Mr Hanratty using the Gail Rock method, did the BTSB consider any other method of home production? Mr Cann said that the Gail Rock method was the only option being considered at this time.

Mr Durcan then referred Mr Cann to a BTSB scientific meeting of 9th June 1983. Mr Durcan asked Mr Cann was this one of the first occasions upon which AIDS was discussed at the scientific meeting. Mr Cann said this was not the first occasion; the BTSB was aware of the AIDS problem from late 1982. Mr Cann said the BTSB would

have been talking about AIDS from the very first day it was announced in the American literature. Mr Cann said the top half dozen people in the BTSB would be the relevant staff. Mr Durcan put it to Mr Cann that from late 1982 there was an understanding that there was a risk that the virus in question might be blood-borne or could be transmitted through blood products. Mr Cann agreed. Mr Durcan asked Mr Cann was this in a document issued by the American health authorities in early 1983? The document stated that the disease was now in the open and that it could be transmitted by blood transfusion. Mr Durcan put it to Mr Cann that if this was the state of American knowledge at the time, would it also have been the state of knowledge of top personnel in the BTSB? Mr Cann said, "Yes, that is all we had to go on it".

Mr Durcan asked Mr Cann did this state of knowledge increase the worry about imported products? Mr Cann agreed that this was the case and that their original supposition was true and they now knew that AIDS was a very serious disease. While not knowing how infectious it could be, it was understood that the consequences of the disease could be very serious.

Mr Durcan asked Mr Cann, did the importation of blood concentrates by the BTSB heighten concerns about foreign concentrates? Mr Cann said it could be taken for granted that this was so.

With reference to the note of June 9th 1983 scientific meeting, Mr Cann said the hand written note indicating "use more concentrate pending intermediate concentrate" was his own note of that meeting. The intermediate concentrate in question was that produced by the Gail Rock method. The reason why it was mooted that more cryo should be used, was that the BTSB thought cryo was a safer product. Cryo was safer with respect to AIDS, but not only AIDS said Mr Cann, all other infectious viruses as well. Mr Cann said the BTSB thought it better to use cryoprecipitate. Mr Cann said this was a unanimous view of the scientific meeting in June 1983.

Mr Durcan asked Mr Cann what steps were taken to implement the view that more cryoprecipitate shoud be used. Mr Cann referred to the note of the meeting where it is suggested that the BTSB meet the Haemophilia Treatment Centre re: requirements. With respect to another observation that the BTSB meet the Department re: policy, Mr Cann said this happened because he was present at meetings with representatives from the Department. The BTSB and the Department of Health discussed the coming of the AIDS virus at these meetings, said Mr Cann. Mr Cann said he could not remember whether the cryo option was presented to the National Haemophilia Treatment Centre or the Department at these meetings.

Mr Durcan asked Mr Cann, were any steps taken to accelerate the introduction of intermediate concentrates in mid-1983? Mr Cann said he could not say what was done as Mr Hanratty was dealing with it, and he reported back to the BTSB scientific meeting. But on a day-to-day basis Mr Cann said he could not say what progress was made.

Mr Durcan then referred Mr Cann to the October 1983 scientific meeting. At the October 13th meeting it is noted that the BTSB has experienced some problems with its production of intermediate concentrate. However, Mr Cann said that in the autumn of 1983 it was still believed that the BTSB could produce its own factor VIII concentrate using the Gail Rock method.

Mr Durcan referred Mr Cann to a BTSB board meeting minute of January 1984. At this board meeting custom fractionation is discussed. Mr Durcan asked Mr Cann, had a change in thinking occurred at the BTSB concerning the production of factor VIII? Mr Cann said no, the custom fractionation discussions at the January 18th 1984 meeting were, he expected, a contingency measure which should be investigated. He was of the opinion that Mr Hanratty was still pursuing his trials, and the project was still ongoing.

Mr Durcan put it to Mr Cann that, at the end of 1983, was it still believed that the production of BTSB factor VIII could be achieved? Mr Cann said he believed this was the case. Mr Cann said that during all this period the BTSB had been able and willing to supply cryo. However no steps were taken to reduce the amount of concentrate imported as the BTSB had no control over what would be demanded by the treaters.

Mr Cann agreed that by the end of 1984 a decision had been taken to move to contract fractionation. Mr Cann said not enough progress had been made with home production. However there was no expression of concern over lack of progress recorded. Mr Cann said the only person who would have discussed this matter would have been Mr Hanratty and the National Director. Mr Cann said he did not know why, given the AIDS scare and the risk of infection from hepatitis, there had been no progress on contract fractionation prior to 1984. Mr Cann said nevertheless an urgency existed surrounding the issue of producing product from Irish plasma.

With regards to heat treating factor IX, Mr Durcan referred Mr Cann to an extract from his diary dated 14th August 1985. This was the day after Helena Daly's visit to the BTSB. The entry noted that a decision had been taken to heat treat factor IX on that day.

Mr Cann said he presumed that the decision had been taken after pressure from the haemophilia treatment centres. Mr Cann said five or six top people at the BTSB would have been involved in taking the decision, but the national director would have made the final decision. Mr Durcan asked Mr Cann had it become clear by then that it was necessary to heat treat factor IX? Mr Cann agreed that this was the case.

Mr Cann said there were snags attached to heat treating factor IX, such as a decrease in yield which would imply the use of more source plasma. With respect to thrombogenicity Mr Cann said these concerns continued for quite a long time. The problem of thrombogenicity continued throughout 1986 and 1987 added Mr Cann. Mr Cann said he was not familiar with any correspondence between Dr Daly and the BTSB on the issue of heat treating factor IX. Mr Cann said that the shipment of plasma to Travenol for contract fractionation decreased the amount of plasma available for the production of cryoprecipitate.

Mr Cann also answered Mr Durcan's questions on the introduction of testing for HIV and the recall of BTSB factor IX in 1985 and 1986. Mr Durcan put it to Mr Cann that from his evidence, it was clear that he understood that non-heat treated factor IX should have been withdrawn at the end of January 1986. Mr Cann agreed that this was the case. Mr Durcan then referred Mr Cann to a visit to the BTSB by Dr Lane and Mr Pettit of BPL on 29th October 1986. Mr Durcan asked Mr Cann did he remember the discussion which took place between the delegation from BPL and BTSB personnel, in which it was stated that non-A, non-B hepatitis had been absent from those treated with BPL super heat-treated product for the previous 18 months, and also that the product was presumed safe for HIV? Mr Cann said he only remembered insofar as his memory has been refreshed by the documents in front of him. Mr Durcan asked Mr Cann did he recall any discussion concerning less thrombogenicity now than formerly arising from the use of BPL super-heat-treated product? Mr Cann agreed that from the documents it would appear that the issue of obtaining BPL product was under active discussion at the meeting. Mr Cann also agreed that it would appear that both BPL factor VIII and factor IX were under discussion at this meeting.

Mr Durcan also discussed Mr Cann's role of project officer in the move from Leeson Street to Mespil Road by the BTSB in 1979/1980.

Mr Cann was then examined by Mr Martin Hayden for the Irish Haemophilia Society. Mr Hayden referred Mr Cann to the letter from Travenol offering the BTSB a 10 per cent handling charge for Hemofil in 1974. Mr Cann said his understanding of the handling charge was that, if the hospitals were charged 12p per unit, the BTSB would get 10 per cent of that.

With regard to importing U.S. products and the risk that was known to be attached to such products arising from the use of skid row type donors, Mr Hayden asked Mr Cann did the BTSB proceed with the use of concentrates? Mr Cann said that this question would be more correctly addressed to the National Haemophilia Treatment Centre who actually used the concentrate. Mr Cann said the BTSB didn't decide what product was to be offered.

Mr Hayden asked Mr Cann whose function within the BTSB was it to tell Prof. Temperley or the treaters of the risks attached to the imported products. Mr Cann said that this would have fallen to the BTSB liaison group of Dr O'Riordan and Mr Hanratty. However, there was no need to tell the treaters of the risks as these risks were well known to the medical world.