

Minnesota Mining and Manufacturing Co. v Beiersdorf (Australia) Ltd
[1980] HCA 9

FEDERAL COURT OF AUSTRALIA

BARWICK CJ, STEPHEN, MASON, AICKIN AND WILSON JJ

BARWICK CJ:

In this appeal I have had the advantage of reading the comprehensive reasons for judgment prepared by my brother Aickin. As I am in complete agreement with what my brother has written, there is little I need add on my own behalf.

However, it is essential that on one aspect of the combination the subject of the patent, namely, the relevant inextensibility of the backing of the tape, that I express my own individual conclusion. As appears from my brother's reasons, our brother Murphy in deciding whether the respondent's tape, Leukopor, was relevantly inextensible, seems to have looked for an absolute whereas the claims of the patent in question stipulated, in my opinion, only for a relative. Not only would absolute inextensibility be in practical terms an unlikely, and, indeed, an unnecessary requisite, but the claims, properly understood, stipulated for such inextensibility as was appropriate for or adequate to the practical use of the product as a surgical or adhesive tape. Consequently, on this as on other essential elements of the controversy between the parties, the Court has been left substantially at large and under an obligation to resolve some of the basic facts as well as the relevant law.

My brother Aickin has canvassed the evidence given in relation to the integer of inextensibility. He has also stated the result of his own observation when the respondent's tape was subjected to hand pulling. Dr. Ashby, who gave evidence for the appellant, said that on hand pulling the respondent's tape in a normal manner it did not stretch appreciably. He was not cross-examined on this statement but we have no indication from the trial judge as to his view of the personal credibility or accuracy of the witness.

In these circumstances, the resolution of the fact must therefore be made by each justice participating in the appeal. Thus, I am unable simply to rely on my brother Aickin's handling of the respondent's tape, though I accept unreservedly his own observation of the result. Consequently, I have personally applied a length of the tape to the flesh of my arm, securing it

there by pressing it against the underside of a projecting part of a table, and have pulled its free end by hand. Having done so, I find that it is relevantly inextensible; in other words, it did not give or stretch to any extent that I could observe. That, in my opinion, satisfies the prescription of being inextensible as that prescription should be understood in relation to the use of a surgical or adhesive tape. Consequently, with this finding and the reasons set out by my brother, I conclude that in relation to the integer of inextensibility the respondent's tape infringed the relevant claims of the specification.

The other matter to which I should specifically advert is the acceptability of the remarks of Sir Dudley Williams in *H.P.M. Industries Pty. Ltd. v. Gerard Industries Ltd.*¹, set out in my brother's reasons. I think my brother rightly treats these remarks as unnecessary to the resolution of the case before Sir Dudley Williams and therefore no more than obiter. I wish specifically to indorse what my brother has said as to Sir Dudley's expressed view. The attribution to the "unimaginative man with no inventive capacity" of all that might be found by diligence in the registries of patent specifications is not only unreal and unduly restrictive of the development of new methods of manufacture, but basically it is fictional rather than real. This is particularly true of a combination patent.

I would allow the appeal and dismiss the cross-appeal.

STEPHEN J:

I agree with the reasons for judgment which have been prepared by my brother Aickin and with the order which he proposes.

MASON J:

For the reasons given by Aickin J., I am of opinion that claims 7, 8 and 9 of the first appellant's patent were valid and have been infringed. I would therefore allow the appeal and dismiss the respondent's cross-appeal.

¹ (1957) 98 C.L.R. 424.

I may say that I have examined the backing (Ex. Y) and the Leukopor tape (Ex. X) by hand pulling such as would be applied to the finished product in ordinary use as a surgical tape and I found that neither the backing nor the tape was extensible, though, like Aickin J., I found that the expenditure of greater effort produced a small degree of extension.

AICKIN J:

This is an appeal by Minnesota Mining and Manufacturing Co. and its subsidiary 3M (Australia) Pty. Ltd. (the appellants) which were the plaintiffs in a patent suit brought in the original jurisdiction of this Court in which Beiersdorf (Australia) Ltd. (the respondent) was the defendant. The proceeding was heard before Murphy J. who dismissed the suit on 15th March 1978. The first appellant (an American corporation) was the registered proprietor under the *Patents Act 1952-1969 Cth* of letters patent No. 260,604 dated 5th April 1961 for an invention entitled "Breathable Adhesive Tapes". The second appellant was a corporation incorporated in the State of New South Wales and had been granted by the first appellant an exclusive licence to make, use exercise and vend the invention throughout Australia. The appellant claimed that the defendant had infringed and threatened to continue to infringe the letters patent and sought an injunction restraining further infringement and an account of profits or an inquiry as to the loss and damage sustained by the appellants by reason of the infringements. The respondent denied infringement and also said by way of defence that the letters patent were and at all material times had been invalid. The respondent also counterclaimed for revocation based on the particulars of objection served with the statement of claim. The particulars were amended on 11th November 1975 and specified most of the possible grounds of objection. However in this Court the principal ground of invalidity relied upon was the particulars of objection which alleged that the invention as claimed in each of claims 7, 8 and 9 was obvious in the light of what was known in Australia at the priority date. Reliance was placed on seven prior publications, namely, two Australian patent specifications, one French patent specification, one United Kingdom patent specification and three United States patent specifications. The particulars of objection also alleged want of novelty but that point was not relied on before the trial judge, but in a written reply in this Court the respondent sought to rely on that ground. This aspect is referred to below.

The trial judge found that there had been no infringement of any of the claims, having taken the view that one essential element was missing in the defendant's tape. He therefore dismissed

the suit without considering the questions of validity which were raised on the pleadings and dealt with in the evidence, and without dealing with all the issues with regard to infringement.

It is necessary to begin with an examination of the specification and claims, though it is not necessary to deal with claims 1 to 6 which are concerned with the process of manufacture of the appellants' tape. It was clear and not disputed before this Court that the process used by the respondent for the manufacture of its competing article did not use the processes claimed.

The opening paragraph of the specification is as follows:

This invention relates to a new and useful type of breathable, porous, pressure-sensitive adhesive tape, and to the novel process of manufacturing. The invention provides novel surgical tapes which possess a unique combination of properties of value to this field of use.

An outstanding feature is that this new type of surgical tape is relatively nonirritating to the skin of most persons and does not cause maceration of the skin even after prolonged adhesive contact therewith. ("Maceration" is a condition of the skin induced by prolonged contact with an adhesive tape whereby the skin becomes soft, wrinkled and white due to the inability of the skin to breathe and to eliminate perspiration, and also due to its being shielded from air and light.)

The present tape has a porous backing (preferably a unified inextensible nonwoven fibrous fabric) carrying a continuous but microporous pressure-sensitive adhesive [sic] coating. This rubbery-base adhesive is water-insoluble and viscoelastic, and the coating is aggressively tacky in its normal dry state. This adhesive coating penetrates into said non-woven porous fibrous backing and is firmly anchored to provide a unitary integrated structure that will not delaminate or split when the tape is unwound or removed.

These three paragraphs may properly be regarded as together constituting the usual "consistory clause". For an understanding of the issues it is necessary to set out the relevant parts of the body of the specification which are as follows:

The novel process of forming the continuous adhesive coating is of such a nature that, during the drying of the coating, innumerable, pore-like apertures spontaneously develop therein and these pores result in a viscoelastic porous adhesive membrane covering the porous backing. These pores are so tiny that they are not visible to the human eye upon casual inspection of the tape—the adhesive coating thus being of a visibly continuous nature. They are, however, of sufficient size and closeness together to permit of ample transpiration of skin moisture and wound vapors, and to permit of absorption of liquid material there-through into the porous tape backing. The effect is essentially uniform over the entire contacted body area; as distinguished from the effects produced by tapes which have relatively large holes or apertures therein, or which have discontinuous spaced-apart stripes or spots of ordinary impermeable adhesive on a porous backing, to obtain a so-called "breathable" tape, as suggested in the prior art. The continuous uniform nature of the present tape is a decided advantage.

use can be made of rubbery-base pressure-sensitive adhesive coating compositions that

are free from extraneous or undesirable non-volatile components or ingredients, thereby avoiding the presence in the dried adhesive coating of substances which may cause or promote skin irritation use can be made of pure polymers which are inherently tacky and which are relatively non-irritating to the human skin, such as the pressure-sensitive acrylate polymers described in Ulrich's U.S. patent No. 2,884,126 (April 28, 1959). This latter adhesive is not only water-insoluble but it is hydrophobic as indicated by the fact that drops of water deposited on the surface do not flow out and wet the surface. The microporosity of the adhesive coating obviates the need of [sic] including any moisture-absorptive material in the adhesive composition.

This also permits of transparent adhesive coatings

The use of a nonwoven inextensible resilient fibrous backing, which does not appreciably stretch under normal hand pulling, has the advantage that the tape will retain or hold the skin in its initial position and that strappings will not develop slackness; which is not true of conventional cloth-backed surgical tapes.

The present process can be used to provide microporous adhesive coatings on woven cloth backings (including the type commonly employed in surgical tapes). However, thin nonwoven inextensible porous backings are required to achieve the unique surgical tape having the combination of desired features previously indicated.

The specification then says that:

The preferred backing is a nonwoven compacted tissue formed of interlaced staple rayon (or equivalent) textile fibers (having a length of about 1 to 2 inches (2.5 to 5 cm)) which is unified by impregnation with a water-insoluble rubbery fiber-binding sizing agent (such as a rubbery acrylate polymer latex) that coats the individual fibers (without filling the interstices) and bonds them together at their crossing points; such as to result in a thin, pliable, inextensible, resilient, water-resistant, translucent, porous, clothlike fabric that is strong and tough enough for surgical tape usage and yet is finger-tearable so that the tape can be applied from a roll without having to be cut. Rubbery, as used herein, refers to a material which is elastic and resilient as distinguished from materials which are plastic or brittle and nonelastic. This unified nonwoven reticular fibrous backing has a very large number of minute interfilar passageways per square inch (or square centimeter) and is highoy [sic] porous. The reticulate structure of the backing performs a physical function in bringing about the transformation of the applied adhesive coating from a non-porous to a porous state during manufacture of the tape, by the process presently to be described, and the preferred nonwoven type of backing is particularly well suited to perform this function.

The specification then states:

In any case, the viscoelastic pressure-sensitive adhesive is applied to the porous backing fabric in such a way as to provide thereon a continuous soft sticky viscid coating containing a volatile vehicle which is in small enough proportion to avoid wicking or penetration of the adhesive through the body of the porous backing, when it is promptly dried after application. The volatile vehicle is, however, present in sufficient substantial proportion to enable the viscid adhesive coating to penetrate into and interlock with the backing and to have a tendency to be drawn by capillarity into the pores. Further drying of this semi-dry adhesive coating results in progressive loss of the residual volatile vehicle and a shrinkage of the coating. These capillary and shrinkage effects produce a strain in each tiny portion of the viscoelastic adhesive film which bridges a backing passageway, and in yielding to this strain one or more minute

openings (pores) are autogenously formed therein. In this way the entire adhesive coating, during drying, autogenously develops a vast number of closely spaced pores, producing a microporous structure in an adhesive film that remains visibly continuous.

The adherency of the tape is not materially reduced by the presence of these pores. The viscoelastic property of the adhesive prevents the pores from closing up even during prolonged pressing of the adhesive in a roll of tape and even when the tape is used for strapping.

There then follows a detailed description of the manufacturing process by which a tape of the described character is manufactured. The specification then goes on to describe the use of other forms of backings but the details of that are of no present significance.

The specification then continues:

This translucent unified nonwoven fabric, although thinner and more pliant than the cloth backings of conventional surgical tapes, has adequate tensile strength, toughness, resiliency and inextensibility for surgical strapping tapes. Yet it permits of a tape that is finger-tearable, and of tape rolls that can be employed in conventional pressure-sensitive tape dispensers of the type having a serrated severing blade. This backing is several hundred times as porous to air as absorbent paper towelling and does not interfere with the transpiration of air and moisture by the adhesive tape product, being much more porous than the adhesive coating. The sized fibers thereof are not water-absorptive and in fact are water-repellent as shown by the fact that a drop of water placed on the fabric surface does not spread out and wet the surface. However, wound liquids and perspiration transmitted through the porous adhesive coating are readily absorbed into the porous capillary structure of the fabric, thereby also promoting transpiration through the adhesive. The excellent wet strength of the fabric prevents it from being seriously weakened by absorbed liquids or during washing of the patient.

The specification after describing a particular method of manufacture, states that:

The resultant adhesive sheeting has a caliper [sic] thickness of 100-150 microns. The thin adhesive coating (which extends into the fibrous backing) contributes only about 15 microns of the total thickness.

Preferably, a discontinuous low-adhesion backsizing is then imparted to the exposed surface of the backing fabric so as to coat the exposed fiber surfaces without materially reducing the porosity.

The pores in the adhesive coating vary randomly in size and range in diameter from 1 to 100 microns, with occasional pores exceeding the latter figure. Pores under 20 microns in diameter provide about 50% of the total pore volume. The transpiration porosity of the tape is such as to provide a moisture vapor transmission rate that exceeds the perspiration emission rate of the human skin under ordinary conditions. The porous adhesive coating is hydrophobic but is (in common with other such adhesives) capable of softening and swelling upon prolonged contact with liquid perspiration. However, due to transpiration of perspiration through the pores, there is much less tendency for the adhesive to soften or lose tackiness upon prolonged contact with perspiring skin, than is the case where an ordinary nonporous type of adhesive is used.

Various other desirable features of the new form of tape are then described but need not be repeated here.

The body of the specification concludes with certain laboratory test data with respect to moisture vapour transmission of the tape as compared with "ordinary cloth-backed surgical adhesive tape".

Claims 7, 8 and 9 are as follows:

7. A breathable translucent pressure-sensitive adhesive tape adapted for use as surgical tape, and comprising a translucent nonwoven inextensible porous backing form [sic] of interlaced staple textile fibers unified by a water-insoluble rubbery fiber-binding sizing agent, carrying an interlocking visibly continuous adhesive coating have a microporous structure adequate to permit perspiration transpiration when applied to the human skin and being of a nature that is relatively non irritating to the human skin as hereinbefore defined, said adhesive coating consisting of a water-insoluble hydrophobic viscoelastic pressure-sensitive adhesive polymer. (18th April, 1960).

8. An adhesive tape according to claim 7 wherein said adhesive coating consists solely of a water-insoluble viscoelastic pressure-sensitive acrylate polymer. (18th April, 1960).

9. A breathable translucent pressure-sensitive adhesive surgical tape consisting of a thin inextensible [sic] nonwoven translucent porous backing formed of a compacted tissue of interlaced staple textile fibers unified by a nontacky hydrophobic rubbery acrylate poly,er [sic] sizing, carrying a partially penetrating thin transparent hydrophobic pressure-sensitive adhesive coating of a nature that is relatively non irritating to the human skin as hereinbefore defined, said adhesive coating consisting solely of an aggressively-tacky hydrophobic viscoelastic pressure-sensitive acrylate polymer the adhesive coating being visibly continuous but having a microporous structure such as to permit perspiration transpiration when the tape is applied to the human skin; said adhesive tape having a thickness not exceeding 150 microns and being highly translucent such as to permit the reacing [sic] therethrough of printed matter when the tape is adhered to a printed surface. (18th April, 1960).

The patent thus claimed is a combination patent in the proper sense of that term, i.e. it combines a number of elements which interact with each other to produce a new result or product. Such a combination may be one constituted by integers each of which is old, or by integers some of which are new, the interaction being the essential requirement.

The new product claimed in claim 7 is described as "a breathable translucent pressure-sensitive adhesive tape adapted for use as a surgical tape". The various elements which combine to make

up such a surgical tape may perhaps be analysed in more than one way but the most convenient classification is to take the features which comprise such tape in three groups.

The first category comprises the "backing" which must be: (a) translucent; (b) nonwoven; (c) inextensible; (d) porous.

The second category comprises the items which make up such a backing, namely: (a) "interlaced staple textile fibers" (b) "unified by a water-insoluble rubbery fiber-binding sizing agent" (c) "carrying an interlocking visibly continuous adhesive coating having a microporous structure adequate to permit perspiration transpiration when applied to the human skin and being of a nature that is relatively non irritating to the human skin."

The third category comprises the adhesive which must be: (a) water-insoluble (b) hydrophobic (c) viscoelastic (d) pressure-sensitive adhesive polymer.

Claim 8 consists of all the integers in claim 7 with the additional integer that the adhesive coating consists solely of a water-insoluble viscoelastic pressure-sensitive acrylate polymer.

Claim 9 is somewhat differently arranged and is narrower than claim 7 or claim 8. It may be regarded as involving all the integers of claims 7 and 8 with a number of additional features as follows: (a) The backing is to be (i) "thin" (ii) "compacted" (iii) unified by "nontacky hydrophobic rubbery acrylate polymer sizing". (b) The adhesive carried by the backing is to be (i) "partially penetrating" (ii) "thin" (iii) "aggressively-tacky". (c) The tape is to be (i) not more than 150 microns thick (ii) highly translucent so as to permit the reading of printed matter to which the tape is adhering.

Although it is convenient for considering the question of infringement to analyze the claims in that manner, it is necessary always to remember that the claims are for a combination of integers, not a mere collocation.

It will be observed that each of these claims is a product claim, properly so called, not merely "a product by a method" claim. The method claims are separate but the product claims claim the product made by any process.

It appears to me that the essence of this invention lies in the combination of the features which make this a useful (thin) breathable translucent surgical tape. Breathable, as the body of the specification makes clear, is the quality of being such that perspiration and vapours from wounds may pass through the tape without affecting its adhesion to the skin and that likewise light and air may reach the skin. This quality is achieved in the finished product by the microporosity of both the backing tape and the adhesive which is placed on and firmly adheres to the backing. The particular adhesive referred to in claims 8 and 9 was known, in the sense that it had been developed by the first appellant and was the subject of an Australian patent (Ulrich's patent) with a priority date some six months earlier than the patent in suit and was available for inspection prior to the priority date of the latter patent. Ulrich's patent contains nothing to suggest that sheets of his adhesive are capable of being made microporous and there is no evidence that this was known before the publication of the patent in suit. Ulrich's patent however shows that his new adhesive claimed to be an advance in adhesives for packaging tapes providing a stronger or more effective pressure-sensitive adhesive for that purpose. Microporosity of the adhesive on such tapes would be a disadvantage and not a quality which would be expected of such an adhesive. There is no evidence that it was known to have the capacity of being made microporous prior to publication of the present patent.

The particular mode of adhesion between the adhesive and the backing tape is described in claim 7 as "interlocking" and in claim 9 as "partially penetrating". In the body of the specification it is said that the adhesive coating "penetrates into said non-woven porous fibrous backing and is firmly anchored ". Another essential feature of the invention appears to be that the nonwoven backing is "inextensible", an expression explained in the specification as meaning one " which does not appreciably stretch under normal hand pulling" so that it will retain or hold the skin in its initial position.

The trial judge heard evidence both on the question of infringement and of validity and after the conclusion of the evidence, and some discussion with counsel his Honour on 18th March 1976 made an order appointing a court expert pursuant to O. 38, r. 2 of the *Rules of the Court* to inquire into certain matters raised in questions annexed to the order and to make a report to the Court upon such inquiry. That order vacated an earlier order referring certain questions to the same expert which had been made on 17th November 1975. The expert duly made a report to the Court pursuant to that order on a date which does not appear from the material before the Court.

So far as material O. 38 provides as follows:

2. In a case which is to be tried or heard without a jury and which involves a question for an expert witness, the Court or a Justice may in its or his discretion at any time on the application of a party, appoint an independent expert to inquire into and report upon a question of fact or of opinion not involving questions of law or construction.

3.

(1) The report, so far as it is not accepted by all parties, shall be treated as information furnished to the Court and shall be given such weight as the Court thinks fit.

The respondent made such a request to the trial judge who acceded to the application.

Order 38 also provides that a party may apply to the Court for leave to cross-examine the expert on his report, but in the present case no such application was made. The expert appointed was in fact a person agreed between the parties as a suitable person, though there was no agreement as to his appointment. Sub-rule 5 (2) provides "the question or the instruction submitted or given to the Court expert, failing agreement between the parties, shall be settled by the Court or Justice".

In the present case the questions to be put were the subject of discussion between the parties but no agreement was arrived at. Accordingly the trial judge settled the questions put to the Court expert. The questions were elaborate and were directed to a number of specific topics, and it will be more convenient to deal with the precise form of the questions when dealing with the individual issues which affect infringement. The individual questions concerned the following integers: "thickness", "extensibility", "microporosity", "interlocking" and/or "partial penetration", and "hydrophobicity" but thickness is no longer in issue.

Order 38 of the Rules is couched in virtually identical terms with O. 40 of the current United Kingdom Rules which reproduces the former O. 37A which was introduced into the English Rules in 1934. There was introduced into the English Rules in 1965 O. 103 which deals exclusively with patent actions. It is substantially the same as O. 40 but the Court may there make the order in the absence of an application by either party. The extent to which recourse has been had to this procedure in England does not appear. Order 103 appears to replace the former practice of sitting with assessors under United Kingdom O. 33, r. 6. English O. 40 and

our O. 38 are ultimately derived from ss. 56 and 57 of the *Supreme Court of Judicature Acts 1873-1875 U.K.*. See *Mellin v. Monico*², where Bramwell L.J. said:

He is not to dispose of the action, and I do not think he is even to determine any matter in issue between the parties; if there are facts disputed the referee, in such a case as that must determine the fact and report it; his duty is, instead of determining issues of fact or of law, to find the materials upon which the Court is to act.

In *Non-Drip Measure Co. Ltd. v. Strangers Ltd.*³ Lord Greene M.R. said:

"It is the duty of the Court to look at the" (expert's) "report and obtain from it (with or without cross-examination, as the case may be) whatever help it can. This does not, of course mean that the Court is bound to accept the report."

In *Badische Anilin und Soda Fabrik v. Levinstein*⁴ Pearson J. quoted the passage set out above from the judgment of Bramwell L.J. in *Mellin v. Monico* and then said⁵:

I think that is exactly what Professor Roscoe has done in this case, and I think I was entitled, whether the parties liked it or not (and they did not assent or dissent from it), in this case, to send the questions to Professor Roscoe, which I did, not to decide any issue in the case, but to get from him that information which would enable me to decide what is before me.

The court expert should not be asked questions which can only be decided by the court itself. For example it would be improper to ask a court expert to construe the specification or to state what he understood to be the meaning of particular words, unless they were in the view of the court used in an accepted technical meaning in a particular branch of science. In such a case the court expert if properly qualified would be able to include in his answers what he regarded as the technical meaning. The extent to which the views of a court expert on matters such as that could prevail over expert evidence given on oath is a matter which does not appear ever to have arisen. It would however seem that the court should prefer the evidence given on a matter which requires expert evidence, so long as there was no sound reason for rejecting such evidence. Some of the individual questions asked in the present case appear to be in the category of questions which it is not legitimate to put to a court expert. It will be convenient to

² (1877) 3 C.P.D 142, at p. 149.

³ (1942) 59 R.P.C. 1, a p. 24.

⁴ (1883) 24 Ch. D. 156.

⁵ (1883) 24 Ch. D., at p. 167.

identify such questions when considering the views of the expert in relation to particular integers of the specification of the claims in suit.

It will be convenient also to refer in more detail to the expert's report when considering the individual issues which are still in dispute. Accordingly there is no need to refer to question A which was concerned with "thickness" of the respondent's tape, the respondent having conceded that its tape was less than 150 microns in thickness. For reasons given below it will not be necessary to consider the expert's report in answer to the question relating to "microporosity".

The trial judge held that the respondent's tape (Leukopor tape) was "microporous" within the ordinary meaning of that term and within the meaning in the claim (if there is any difference between those meanings). However he held that the respondent's tape was not "inextensible" and for that reason held that the appellants had failed to establish infringement. He did not consider any other integer in respect of which it had been argued that infringement had not been proved and did not consider questions as to validity. Before this Court the respondent challenged the finding that the Leukopor tape was "microporous" and maintained its contentions that the backing was not "inextensible", that the adhesive was not "interlocking" or "partially penetrating" in the relevant sense, and that the backing was not unified by a water-insoluble hydrophobic polymer sizing. The respondent however conceded that the thickness of its tape did not exceed 150 microns. In the course of the trial the respondent had abandoned all other issues in respect of infringement.

It will be convenient to deal first with the question of infringement in relation to each of the integers still in dispute, and to examine separately so much of the evidence as is material to each such issue.

"Microporous."

The respondent's argument on this point had been reduced to writing before the trial judge and we were supplied with a copy of that document. No separate argument was directed to the reasons given by the trial judge.

The appellants relied on the fact that the respondent's own patent for its Leukopor tape used the word "microporous" many times, and that Dr. Mueller, the respondent's principal expert

witness and an employee of the German company which manufactured the respondent's tape, said that the tape was manufactured in accordance with the process described in its patent. The appellants also relied on an advertising brochure produced by the respondent dealing with Leukopor tape which again described it many times as "microporous". The latter at least may be regarded as an admission but even so regarded it cannot be decisive. The meaning of the word in some particular context may involve some specific measurement limiting its application but such a meaning could only be derived from the context and there is no such context here. The context provided by the specification itself points the other way in that it is there said:

these pores are so tiny that they are not visible to the human eye upon casual inspection of the tape—the adhesive coating being thus of a visibly continuous nature. They are, however, of sufficient size and closeness together to permit of ample transpiration of skin moisture and wound vapors and to permit of absorption of liquid material therethrough into the porous tape backing.

Claim 7 speaks simply of a "microporous structure adequate to permit perspiration transpiration" and claim 9 speaks of the "adhesive coating being visibly continuous but having a microporous structure such as to permit perspiration transpiration when the tape is applied to the human skin". Evidence given by the respondent's experts that when Leukopor tape was held up against a source of light, there were visible "apparent pinholes" was correctly treated as irrelevant. That was plainly not the mode of inspection suggested by the specification and cannot be said to be required by the ordinary English meaning of the term.

The trial judge did not accept the view that the word "microporous" had or was used in some special scientific sense giving it a different meaning from its ordinary meaning. One of the respondent's expert witnesses, Professor Ayscough, said that the word meant a pore of less than 20 microns in diameter. He derived that meaning from a German journal first published in 1965, some five years after the priority date. There was no evidence that that meaning was then, or at the priority date, the ordinary meaning in Australia. The trial judge rightly rejected that meaning. One of the questions asked of the court expert was what was the meaning of the word "microporous", it not being suggested that it had or was used in some special scientific meaning. The question of what is the meaning of an ordinary English word is not one which may properly be asked of a court expert. It is for the court itself to determine its meaning, if there is a dispute about it.

A number of dictionary meanings were referred to but none of them included Professor Ayscough's meaning and no other witness suggested that it bore that meaning, either in ordinary usage or in scientific usage. His evidence was simply of an irrelevant fact having no bearing on the word's ordinary meaning.

The dictionary meanings all convey the central idea of a pore not normally visible to the human eye without some form of magnification. The specification conveys this meaning in the passage quoted above, and moreover claims 7, 8 and 9 each require that the adhesive coating shall be "visibly continuous" and shall have a microporous structure. This is not a case where the specification supplies its own dictionary meaning but it is legitimate to look at the specification to see whether it shows the word to have been used in some special sense. In fact it shows that it was not so used.

No reasons were advanced in argument to demonstrate some error by the trial judge. His reasons for judgment do not suggest that his conclusion was wrongly influenced by the court expert's report and in any event it is in accordance with the ordinary English meaning of the word. There is no basis for reversing his conclusion on this point and indeed it is the view which I have independently formed as to the ordinary meaning of the word and its application when applied to the expression "microporous structure" of the adhesive as referred to in claims 7, 8 and 9. Accordingly this integer was present in the alleged infringing article.

"Inextensible."

There was no significant dispute between the parties as to the ordinary meaning of the word "inextensible", which is illustrated by the dictionary meanings set out in the judgment of the trial judge, being essentially statements that its meaning is "not capable of extension". It was however not in dispute that such a meaning was not to be taken literally because there is no substance which is inextensible in absolute terms. It was again not in dispute that there was no special scientific meaning of the word nor that it was used other than in its ordinary meaning. It was argued for the appellants that, although the word had no special meaning, it was to be understood in the light of its context, i.e. in the light of the fact that it is used in relation to a nonwoven textile backing and that the body of the specification provides a context which indicates the way in which the inextensibility of such a fabric is to be assessed. Thus the body of the specification indicates that the inextensibility of the fabric is to be judged by reference

to ordinary hand pulling such as would be used to place the tape in position in its ordinary use as surgical tape.

It is important to bear in mind that claims 7, 8 and 9, and the body of the specification require the backing tape to be "unified" by a "rubbery" sizing agent. The body of the specification states that the word "rubbery" refers to a material which is "elastic and resilient". The body of the specification also describes the backing as "resilient" as well as "inextensible", but the claims do not include the former word. However it is clear that the resilience referred to in the body of the specification is conferred on the backing by the rubbery sizing agent, which is one feature of each of claims 7, 8 and 9. In the result the claims require that the backing as unified be "resilient". The claims, and the body of the specification, must be read in the light of the requirement that these two qualities must be present, so that each must be read in a relative sense. The degree of inextensibility will necessarily depend upon the force applied and the means by which it is applied. The specification does not convey that it is to be inextensible in circumstances where an attempt is made, either by hand or by mechanical means, to see how far it may be extended. The standard is laid down as being "inextensible" when subjected to "ordinary hand pulling" in its use as a surgical tape, the backing of which is a thin nonwoven resilient textile material, and in such circumstances it is to be, as the body of the specification says: "relatively inextensible" or "not capable of stretching appreciably".

This is no doubt a simple and pragmatic criterion but one likely to be readily understood by those who use surgical tape, or who would, after expiration of the patent, wish to manufacture it. Lack of precise definition in claims is not fatal to their validity so long as they provide a workable standard suitable to the intended use—see *British Thomson-Houston Co. Ltd. v. Corona Lamp Works Ltd.*⁶ and *Monsanto Co. v. Commissioner of Patents*⁷.

The respondent's expert witness, Dr. Mueller, gave evidence that he had tested Leukopor tape (i.e. tape manufactured in accordance with the respondent's own patent), as well as a sample of the appellants' tape as marketed. His evidence was that he had measured the elongation of each

⁶ (1922) 39 R.P.C. 49.

⁷ (1974) 48 A.L.J.R. 59, at p. 60.

sample of tape at the point at which the tape broke by reason of the application of stress. He found that the respondent's tape stretched appreciably further than the appellant's tape before breaking. He said that he did not have any recollection of the comparative stresses applied or of the relative extent of stretching with the application of different stresses. It is first necessary to say that a comparison between the respondent's tape as marketed and the appellants' tape as marketed at some date substantially later than the patent is an exercise which serves no useful purpose. The question is whether the respondent's tape infringes the claim or claims set out in the patent. The appellants' tape as marketed may or may not involve all the features of the patent and it would be irrelevant to inquire whether it did or not. The second and equally important point is that the ascertainment of the amount of stretching or extension at breaking point is not a measure of extensibility in the context of this patent. The specification does not require some specified maximum extension when some specified force is applied, nor some specified degree of extension when a force sufficient to break the tape is applied. Neither does it specify the length or width of the sample which should be tested to ascertain this feature.

The requirement of the specification is that the "backing" would be inextensible. Some of Dr. Mueller's tests were done on the backing of the Leukopor tape prior to the application of the adhesive to produce the finished surgical tape and others were done on the finished product. Both the backing and the finished product, Leukopor tape, were "hand tested" by Dr. Mueller in court in front of the trial judge, and the court expert also carried out such a test on the respondent's backing and on the appellants' tape. It is to be noted in passing that to ask the court expert to compare the respondent's backing or tape with the appellants' tape is to invite him to investigate an irrelevant matter, as has already been indicated.

No objection was taken to the testing of the finished tape as well as the backing and this seems plainly to be right. The backing is a nonwoven material unified by sizing and its capacity to stretch or not to stretch under ordinary hand pulling, would not be significantly affected by the presence of the adhesive which is, by definition, a viscoelastic substance, i.e. something which will both flow and extend and recover elastically when pulled on its own. Thus if the backing is not extensible the presence of the adhesive, which by itself is extensible, would not make the finished product extensible and if the backing were extensible the presence of the adhesive would not make the finished product any more or any less extensible. No objection was taken to the testing of the finished tape for this purpose and indeed Dr. Mueller did such a test and gave evidence of it.

The trial judge took into account not only his own hand test but also the respondent's evidence and the expert's report in determining whether Leukopor tape was "inextensible". Moreover he took into account that report in relation to accepted scientific methods for testing percentage elongation at breaking point and the results of the court expert's tests at breaking point. It is plain that the expert's report, as well as the evidence of Dr. Mueller's similar tests upon which he also relied, substantially contributed to the answer which the trial judge gave on the question of extensibility. That material is such as to lead to an erroneous conclusion because it is clearly irrelevant to the determination of the question of infringement and a conclusion based wholly or partly on such matters cannot be regarded as soundly based. It cannot be treated as a finding which an appellate court should not disturb, whatever view one may adopt as to the extent to which an appellate court may interfere with findings of a trial judge and make appropriate inferences from the evidence for itself. It is moreover clear that no question of credibility of the witnesses arises in relation to this aspect.

The body of the specification makes numerous references to "inextensible" and in the light of what is said it is sufficient to refer to the explanation provided by the expressions "does not appreciably stretch under normal hand pulling" and "adequate inextensibility", an expression which must mean adequate for efficient use as a surgical tape.

When the court expert tested the tape by normal hand pulling in circumstances appropriate to applying it to the skin by pulling it taut before doing so he answered the question by saying that it was inextensible or substantially so. He also said that he had applied it to his own, and other persons' skin and had observed no puckering of the skin beneath the tape. Whether such a question could be properly put to a court expert is another matter, but, even if it were, his answer could not be binding.

In the end the question of whether it was inextensible or not was for the trial judge to determine on the relevant evidence before him, including the "real" evidence provided by the tape itself which he examined. It is clear that the hand pulling referred to is not an attempt to stretch the tape or the backing, but the application of the kind of force which the tape would receive in ordinary use. If it were the fact that the tape could be stretched if one set out to stretch it by deliberately pulling, otherwise than as it would be pulled in ordinary use, that would not be

material. The ordinary use of the tape is that it is applied to the skin of a patient in order to hold it in the desired position and it is an appropriate manner in which it may be tested.

It may however be tested without actual application to the skin by applying by hand the same degree of force as would be used for that purpose.

As to the other evidence, Dr. Ashby (one of the appellants' expert witnesses) said that it did not appreciably stretch on normal hand pulling and he was not cross-examined on this point. Dr. Mueller also gave evidence that he had tested Leukopor by hand pulling and by application to his own skin and found it extensible. In later evidence, after speaking of the breaking strain tests, he said that he "stretched the material" by hand but it is not clear whether on that occasion he was speaking of a deliberate stretching by hand rather than by mechanical means, or of "normal hand pulling".

At the trial, the trial judge was invited by both parties to apply the "normal hand pulling" test to a specimen of the backing himself and his reasons for judgment refer to his having done so and found it "extensible". However in arriving at his conclusion he also took into account the irrelevant matters which are referred to above.

The respondent did not consent to this Court itself testing the tape but counsel for the appellants urged the Court to do so on the footing that that was the simple test prescribed by the specification and it could be so tested by the members of the Full Court if it were thought helpful to do so. Some suggestion was made in argument by counsel for the respondent that the tape and the backing were now old but the fact is that they were already "old" at the trial, having been purchased in 1972. No evidence was given then as to the effect of ageing of the backing or of the finished product, and indeed one of the advantages claimed for Leukopor tape was that the adhesive was "long lasting".

It is also to be noted that the trial judge made no comment in his reasons for judgment upon his impression of the testing by normal hand pulling which was carried out by Dr. Ashby in the witness box. Likewise he made no comment on his observation of Dr. Mueller's hand pulling in the witness box, though he does refer to what Dr. Mueller said.

The evidence is conflicting in that witnesses performing what appeared to be "normal hand pulling" described the result, which apparently they alone observed, in contradictory terms. The trial judge and the court expert in applying that test arrived at contradictory results. I have already said that in my opinion the trial judge's conclusion was influenced by his reference to the test of extension at breaking point which both Dr. Mueller and the court expert performed and relied upon. That test was irrelevant to the question of inextensible within the meaning of these claims.

The trial judge did not resolve this conflict by reference to credibility and indeed no such question arose in relation to any evidence. It cannot be resolved by saying that there was no evidence that the Leukopor tape was inextensible, nor by saying there was no evidence that it was extensible. For reasons already given the trial judge's solution was affected by reliance on irrelevant matters. It is neither proper nor appropriate to resolve it simply by reference to the onus of proof and reliance on inability to resolve the contradictory evidence of qualified and credible expert witnesses.

In these circumstances the proper course is for this Court to test the product itself by the "normal hand pulling" procedure putting on one side the possible results of stretching to breaking point and of deliberate stretching to see the maximum extension with the force of two hands.

I have therefore examined the backing (Ex. Y) and the Leukopor tape (Ex. X) by hand pulling such as would be applied to the finished product in ordinary use as a surgical tape i.e. as if it was being placed on human skin to hold it in a desired position. My observation was that neither the backing nor the tape was appreciably extensible in those circumstances, though the expenditure of greater effort appeared to produce some small degree of extension.

In those circumstances I am of opinion that I should give effect to my own view which is one taken by one expert witness and the court expert, though not taken by another expert witness and the trial judge.

"Interlocking and Partial Penetration."

Claim 7 requires that the backing should carry "an interlocking, visibly continuous adhesive coating" and that requirement is embodied in claim 8. Claim 9 requires that the backing should

carry "a partially penetrating thin transparent hydrophobic pressure-sensitive adhesive coating". The body of the specification says "this adhesive coating penetrates into said nonwoven porous fibrous backing and is firmly anchored to provide a unitary integrated structure that will not delaminate or split when the tape is unwound or removed". It also speaks of the adhesive coating being such as to enable it "to penetrate into and interlock with the backing and to have a tendency to be drawn by capillarity into the pores".

The respondent contended that Leukopor tape did not involve the features of "interlocking" or "partially penetrating" adhesive and that their adhesive was attached to the backing by a chemical bond and not by any "interlocking" or "partial penetration" which would produce a physical bond by the adhesion of the coating to the fibres (coated with sizing) comprising the backing. It was said that the manufacturing process of Leukopor was a "dry process" by which the backing and the adhesive (already in a dry or substantially dry condition), were run between two rollers under substantial pressure so that they adhered to one another. The evidence was that, at that stage of the manufacturing process, the backing and the adhesive could be "delaminated" by being pulled apart by hand. It was further said that in the final process of manufacturing, namely, a heating process, there was "promoted a chemical reaction between the adhesive and the sizing on the backing by which a chemical bond was created between the adhesive and the sizing through the existence of a "double valency link" ".

The specification in suit does not appear to use the expression "interlock" and "partial penetration" as intended to convey any different meaning. They both suggest that the adhesive coating when pressed on to the backing becomes attached to the fibres by reason of its own adhesive qualities, which also hold it firmly on to the skin when the other side of the adhesive layer is applied to the skin. It is clear that the word "interlock" is not used in any special sense. Its ordinary meaning is no more than that the two or more things being referred to are joined firmly together or united closely. The Shorter Oxford English Dictionary gives as meanings of the intransitive verb "to engage with each other by partial overlapping or interpenetration of alternate projections and recesses" and as the transitive verb "to lock or clasp within each other".

The nature of the backing which consists of randomly arranged short pieces of staple fibre unified by a sizing agent is such that its surface could neither be regular nor smooth when viewed with such a degree of magnification as would make individual fibres visible. The

necessarily porous character of the backing would require that the surface be of a broken nature leaving an adequate number of holes to give it a porous character, such holes obviously being of irregular size and shape, some no doubt penetrating right through the tape and others giving access to what may be described as an open lace-work structure through which air may readily penetrate. This is obvious enough from the description of the material and it is readily apparent from the microphotographs which were put in evidence. This is a characteristic of the tape as described in the body of the specification and as claimed in claims 7, 8 and 9. It is an inherent characteristic of a "porous nonwoven backing" and is a characteristic of the Freudenberg backing used by the respondent and it is of that backing that microphotographs were taken, with and without the adhesive.

The term "pressure-sensitive adhesive" was evidently well known at the priority date both in Australia and elsewhere and was used in relation to "packing" tapes and the like. The term has a meaning which is explained in an Encyclopaedia of Chemical Technology which was quoted by Professor Ayscough, who was one of the respondent's expert witnesses. The definition or description was as follows:

Adhesives of this type have a high degree of tackiness as compared to other types of adhesive. As a result they bond almost instantaneously when slight contact pressure is applied to force the two mating surfaces together. Such adhesives have a rather high cohesive strength so that despite their high degree of tackiness they can be removed from smooth surfaces without leaving an appreciable residue.

It is thus a characteristic of "pressure-sensitive" adhesives that when such an adhesive is pressed upon a nonwoven material it will adhere to it, and particularly so if the pressure is applied by passing both the adhesive and the backing between rollers under substantial pressure.

It is because of its pressure-sensitive quality that the adhesive adheres to the backing against which it is pressed in the manufacturing process and it accordingly adheres to the fibres which comprise the backing.

The claims in question require that there should be interlocking or partial penetration but do not specify or control the extent of such interlocking or penetration save that it must be such as to produce a degree of adhesion between the backing and the adhesive coating such that the product will be usable as a surgical tape or an adhesive tape. No particular form of interlocking

is specified by the claim or to be derived from the body of the specification nor is the term limited otherwise than by the requirement that there must be some degree of penetration.

It does not appear to me that the process of adhesion by the development of a chemical reaction between the adhesive and the sizing which covers fibres of the backing is incapable of constituting interlocking or partial penetration. It produces a firm joining together of the two where they come into contact. The evidence makes it clear that there could be no chemical reaction without contact at the "interface" between the adhesive and the sizing with which the fibres are coated. That would fall just as much within the claim as would mechanical adhesion, i.e. the ordinary process by which an adhesive becomes physically attached to that to which it is applied. The claim is not limited to "interlocking" brought about by one means only.

Evidence was given by experts on either side dealing with the question of whether the adhesive in the allegedly infringing tape interlocked with or partially penetrated the porous backing. The principal witness for the appellant on this matter was a Mr. Simmens, an experienced microscopist, who had had more than twenty years' experience in the textile field and the use of microscopic techniques in that field. He was a senior research officer of the Cotton, Silk and Man-made Fibres Research Association (also known as the Shirley Institute) located in Manchester in England. He had been supplied with samples of the backing and of the completed Leukopor tape. He had made an examination of those specimens both by the use of an optical microscope and of an electron microscope. In this field it is as well to remember Lord Reid's observation in *C. Van Der Lely N.V. v. Bamfords Ltd.*⁸ where he said:

Lawyers are expected to be experts in the use of the English language, but we are not experts in the reading or interpretation of photographs. The question is what the eye of the man with appropriate engineering skill and experience would see in the photograph, and that appears to me to be a matter for evidence. Where the evidence is contradictory the judge must decide. But the judge ought not, in my opinion, to attempt to read or construe the photograph himself; he looks at the photograph in determining which of the explanations given by the witnesses appears to be most worthy of acceptance.

In the present case that observation is particularly true in the interpretation of photographs taken under high magnification by an optical microscope and at the even higher magnifications

⁸ [1963] R.P.C. 61, at p. 71.

attainable by the use of the electron microscope. A number of such photographs were tendered by each party and evidence given about them. In considering those photographs, which are important in relation to this particular issue, it is important that the expert interpretation of them should be carefully examined but in so far as the experts differ the court must of course make up its own mind in the light of the expert explanation of the process and the degree of magnification.

However there are some things which the microphotographs in evidence demonstrate which are not in dispute between the parties. I have referred above to the fact that when viewed under the microscope the surface of the nonwoven backing is by no means smooth and continuous as it appears to the naked eye but, as the specification makes clear, highly porous so that the surface is markedly discontinuous and the random interlacing of the individual fibres makes that part of the surface rough and discontinuous, in both horizontal and vertical planes. Mr. Simmens had taken a substantial number of both optical and electron microphotographs at varying degrees of magnification, and he gave evidence about them, in particular about certain of the photographs which comprised Ex. 8.1 and 8.2. He said, after discussing the particular photographs, "I find the adhesive to be interlocked securely with the backing material and the whole to be a unitary integrated structure." He pointed out in relation to certain of the photographs (LT 13-16) that the outlines of individual fibres were clearly visible on the surface and were coated by the adhesive. He said in a written report admitted in evidence that photographs LT 13 to LT 18 revealed that "a smooth unbroken surface can be seen commencing at the upper adhesive face and continuing down into the pore and coating one or more fibres". He also referred to photographs LT 23 to LT 31 and said that the appearance of a cross section of the tape, when examined under the electron microscope, revealed fibres within the adhesive layer and that the particular microphotographs of the cross section showed fibres positioned very close to the adhesive surface. He based his conclusion that the adhesive interlocked securely with the backing material and the whole was a unitary integrated structure upon the disposition of the fibres on the adhesive side of the tape as viewed by optical and scanning electron microscopes and on his observation of the continuity of the upper (adhesive) surface down into the pores and around the individual fibres. The respondent's expert witness on this matter was Professor Ayscough. Dr. Mueller disclaimed any skill in the interpretation of microphotographs but said that the manufacturing process used at or about the relevant time was as described in the respondent's patent (Ex. 17—Australian Patent No. 418938), save for the thickness of the adhesive applied to the backing. That specification states that:

It was not foreseen and therefore surprising that the adhesive would not penetrate (i.e. filter) through the porous base when the high pressure of the roller process was used on the composite product formed from intermediate support, adhesive layer and porous base.

If desired, the porous base layer provided with the microporous adhesive layer may be subjected to a short heat treatment, preferably at a temperature of about 140°C, to improve the anchorage of the adhesive layer to the porous base material still further. If a binding agent containing carboxyl groups is used for the impregnation of the porous base layer and at the same time a visco-elastic adhesive which contains reactive groups is chosen, an additional anchoring effect is obtained during this brief heat treatment, by chemical reaction.

In one of the examples in the respondent's specification, it is said that "the adhesive layer is transferred from the paper base to the matted textile web and is anchored on to this at the same time"—i.e. by the calendering process by which the backing and the adhesive layer are passed through rollers under a high pressure. It is clear that the subsequent heating process to produce the chemical reaction is by way of obtaining "additional anchorage" over and above that which is obtained by the pressing together of the backing and the adhesive between rollers at high pressure.

Professor Ayscough was one of the expert witnesses called by the respondent who dealt with this same matter. It may be noted that at no stage in his evidence did he say that there had been no penetration of the adhesive into the backing of the Leukopor tape and he refers to the manufacturing process and states that the rollers exert very high pressure on the adhesive and the backing. However he said, contrary to what is said in the specification, that the purpose of the passing through the rollers under very high pressure was "not to achieve an adhesive bond, the purpose is to bring the two layers into intimate, physical contact but more particularly to rupture the membrane around the vesicles and to ensure that the vesicular film is porous". The specification however makes it clear that the purpose of this is to create adhesion as well as to rupture the membrane of the adhesive but it is significant that Professor Ayscough acknowledged that there was "intimate physical contact". The nature of the nonwoven backing makes it clear that no "intimate physical contact" could occur without there being penetration for some distance into the highly porous material. Professor Ayscough maintained however that the degree of penetration was minimal. The microphotograph (LB 1 in Ex. 8.2) shows the defendant's backing before the adhesive is applied to it and clearly demonstrates the open irregular surface and the open structure of the interior. The effect of the calendering between the rollers is seen in Ex. 8.2 when photograph LT 13 which is the tape with the adhesive on it

is compared with photograph LB 1. Professor Ayscough did not advert to the fact that according to the patent specification the chemical reaction only takes place during the subsequent stage if heating is applied. Professor Ayscough produced certain photographs, which had been taken by a Dr. Robinson, of the respondent's tape and certain diagrams which he had prepared reproducing what was visible by the use of the microscope. He had drawn a line on certain of those photographs marking the boundary between the adhesive layer and the backing of the defendant's tapes but admitted in cross examination that there were fibres above the line and appearing in the area which he said represented the adhesive. He also observed that the backing was "quite irregular".

The difference between the evidence of Mr. Simmens and Professor Ayscough is in the end only one of degree. Mr. Simmens' interpretation of the photographs and what he in fact saw with the use of the microscope was that there was substantial interlocking or penetration, whereas Professor Ayscough, while not saying at any point that there was no penetration, sought to minimize the extent of it. Professor Ayscough emphasized that the chemical bond, referred to as a possible additional feature in the respondent's specification, was a much stronger bond.

In so far as it may be legitimate to advert to the views of the court expert he also concluded that intimate contact existed between the adhesive and parts of the backing but said that it was not possible to distinguish whether they were sustained completely or partly by covalent bonding or merely by physical bonding. He concluded that it was "almost certain that some degree of physical bonding occurs, regardless of the presence of any covalent bonding". He said that numerous fibres from the backing were embedded in the adhesive and that by focussing inside the pores of the adhesive it was possible to observe fibres embedded in the adhesive when examined by an optical microscope and that photographs taken with the aid of the scanning electron microscope showed that there were frequently fibres visible close to the surface of the adhesive inside the pores.

In the light of the evidence of Mr. Simmens and of the fact that Professor Ayscough did not at any time deny that there was any penetration, and in particular he did not deny or contradict Mr. Simmens' interpretation of the photographs which he said showed a degree of penetration, it appears to me to be satisfactorily established that there was "interlocking" and "partial penetration". The bringing of the backing and the viscoelastic adhesive into this kind of contact

provided the necessary "interlocking" or "anchorage", whether it took place by chemical reaction or by a physical adhesion or by a combination of the two processes. The fact that it may have been wholly by a chemical process is not sufficient to make it other than interlocking or partial penetration, because the claim is not limited to any particular kind of adhesion between the backing and the adhesive layer.

I am therefore satisfied that there is "interlocking" and "partial penetration" in the respondent's tape and that it does not fall outside the claims in this respect.

"Hydrophobic."

One of the integers of claim 9 is that the nonwoven backing of staple fibres must be unified by "a non-tacky hydrophobic rubbery acrylate polyer [sic] sizing". The relevant facts upon which this point turns were not in dispute. Leukopor tape uses as a backing a nonwoven fabric of staple fibres, "unified" by a rubbery acrylate polymer sizing which is however hydrophilic, i.e. it absorbs water and becomes wet, so that the test referred to in the specification, namely that a drop of water placed upon it would "stand up" as a separate drop and would not spread out and soak in, would not be satisfied. However, at a subsequent stage in the manufacture of Leukopor tape the backing was wholly immersed in a solution of hydrophobic resin which coated substantially all the individual fibres of the backing. Indeed Dr. Mueller said that the backing tape was totally hydrophobic after it had been immersed in the hydrophobic agent, i.e. the resin. Indeed he said that it was essential that it should be hydrophobic in order that the finished product should be suitable for use as a surgical tape.

Two questions arise with respect to this integer. The first is the proper construction of the claim, i.e. whether it requires that the sizing should be hydrophobic of its own nature. The alternative construction is that it is sufficient that by the time the backing is ready to have the adhesive applied to it, the sizing is hydrophobic. It is clear that the sizing chosen to "unify" the backing of Leukopor tape was itself hydrophilic and that the result of its application was that the backing in its then condition was hydrophilic. However before the adhesive was applied a further step was interposed, namely, the immersion of the backing in a "hydrophobic back sizing agent the result being that the backing becomes totally hydrophobic" to use the words of Dr. Mueller. He explained in evidence that it was not truly "back-sizing" (i.e. a sizing applied only to the back of the backing) because it was wholly immersed in the resin, though the resin was not itself a polymer.

The words of claim 9 require that the backing should "be unified by a non-tacky hydrophobic rubbery acrylate polymer [sic] sizing" but they do not specify at what stage the sizing should have that characteristic, save that it is plain that it must be in that condition before the adhesive is applied to it.

The evidence makes it clear that the non-tacky rubbery acrylate sizing which "unifies" the backing of the Leukopor tape has become hydrophobic prior to the application of the adhesive and that this was achieved by the application of a thin coating of hydrophobic resin. Accordingly the backing itself may properly be described as hydrophobic prior to that stage. It appears to me proper to say that the sizing already in place, which "unified" the backing, has at that stage also been rendered hydrophobic because of the coating of hydrophobic resin which then covers it. It is an ordinary use of language to describe the coated backing as unified by hydrophobic polymer sizing, notwithstanding that the original material used as a sizing required further treatment before it had that characteristic.

Accordingly the Leukopor tape did have this integer and no escape from infringement is provided by the two stage process of starting with a hydrophilic polymer sizing and then making it hydrophobic. If that were not so, the question would remain whether the respondent's product nonetheless takes the "substance" of the invention by substituting that which has all the qualities of a backing tape unified by a hydrophobic polymer sizing, because it has been made hydrophobic by the respondent prior to the application of the adhesive. Thus the respondent's tape may be not unfairly described as the result of a choice of a sizing unsuitable for the purpose, and subjecting it to further process to make it suitable. Such an exercise however does not necessarily result in the absence of infringement.

Notwithstanding the undoubted fact that the doctrine of *Clark v. Adie*⁹ concerning the taking of the pith and substance of an invention, but nonetheless staying outside the express words of the claim, is less often applicable at the present time than it was at the time of that decision, it

⁹ (1875) L.R. 10 Ch. App. 667.

remains the law that a defendant may not take the substance of an invention unless the wording of the claims makes it clear that the relevant area has been deliberately left outside the claim.

The authorities which demonstrate this to be so are collected in the judgment of Gibbs J. in *Olin Corporation v. Super Cartridge Co. Pty. Ltd.*¹⁰ and need not be repeated here.

The present case is a clear example of the process of taking the substance without the form. The respondent's product substitutes for the hydrophobic polymer sizing a less useful and effective sizing, namely one which is hydrophilic and which would result in a less useful, or perhaps useless, end product, and then corrects this deliberate error by an extra step, i.e. immersion of the backing in an hydrophobic resin, which coats the rubbery acrylate polymer sizing already on the fibres of the backing with a hydrophobic resin before the stage of applying the adhesive to it is reached. This two stage process achieves an end product no different in any relevant sense from the product claimed in claim 9 as appears from the respondent's patent specification. That specification states:

The impregnation of the textile web can be carried out in the usual way with solutions or aqueous dispersions of known binding agents, e.g. of polyacrylic acid esters or acrylic acid estercopolymers, and finally drying and compressing. In the event that the chosen binding agent does not itself show a hydrophobic effect, the web can be treated additionally with a hydrophobic material such as, for examples, a melamine resin modified by stearyl groups, to give the required degree of water-repellence.

Moreover Dr. Mueller said that after the final step "the fibres and the holes between the fibres are completely covered with the sizing agent and the water test is conducted, not a drop of water comes in contact with the fibres. It only comes in contact with the sizing agent and after this process the product is hydrophobic".

The essential feature of the patent in this respect is that in the finished product the backing would be unified by an hydrophobic sizing, the means by which, and the stage at which, this feature is achieved in the production of the finished product is not the essence of the invention and cannot be regarded as an area deliberately left open.

¹⁰ (1977) 51 A.L.J.R. 525, at p. 530.

The *Patents Act 1952-1973* ("the *Patents Act 1952* ") s. 100 (1) sets out the grounds upon which a patent may be revoked of which grounds (e) and (g) are material. They are as follows:

(e) that the invention, so far as claimed in any claim, was obvious and did not involve an inventive step, having regard to what was known or used in Australia on or before the priority date of that claim

(g) that the invention, so far as claimed in any claim, was not novel in Australia on the priority date of that claim.

In *H.P.M. Industries Pty. Ltd. v. Gerard Industries Ltd.*¹¹ ("the *H.P.M. Case*") Williams J., sitting as a single justice, held that in s. 100 (1) (e) the words "known or used" embraced more than the common general knowledge of a skilled worker in the relevant field at the priority date. He said¹²:

Paragraph (g) appears to accept the law relating to want of novelty as it existed at the date of the *Patents Act*. But par. (e) appears to have widened the law relating to want of subject matter. It requires the Court to have regard to what is known or used in Australia before the priority date of the claim, and the words "known or used" appear to embrace more than what had become commonly known or used or in other words more than the common general knowledge of a skilled craftsman in the particular art on that date.

Williams J. referred to the decision of the Court of Appeal in *Allmanna Svenska Elektriska A/B v. Burntisland Shipbuilding Co. Ltd.*¹³ ("*Allmanna Svenska*") and to the observations of the House of Lords in *Martin and Biro Swan Ltd. v. H. Millwood Ltd.*¹⁴ and said¹⁵:

It is clear from these discussions that in deciding what was obvious, it is necessary to consider what would have been obvious to the hypothetical skilled craftsman in the state of knowledge in the particular art existing at the priority date of the patent and that this knowledge consists of everything disclosed by the literature on the subject (including prior specifications), and revealed by the articles then in use and of the common general knowledge.

The English legislation with which those cases dealt was not in the same form as the relevant sections of the *Patents Act 1952*, and in effect added to the equivalent of par. (g) the concluding

¹¹ (1957) 98 C.L.R. 424.

¹² (1957) 98 C.L.R., at p. 437.

¹³ (1951) 69 R.P.C. 63, at pp. 68-70.

¹⁴ [1956] R.P.C. 125.

¹⁵ (1957) 98 C.L.R. 438.

words of par. (e). The Court of Appeal held the same words should be given the same meaning in each paragraph with the consequence referred to by Williams J.

It may be thought curious that a change in the language used in the ground of want of novelty should produce a change in the law with respect to obviousness, but this was not the subject of any comment by Williams J. However there was no such change in the Australian legislation.

As I have elsewhere observed I think it clear that the Full Court in *John McIlwraith Industries Ltd. v. Phillips*¹⁶ did not indorse that view but merely proceeded upon the assumption that it was correct, since in the circumstances of that case no different result would have followed if the other view had been taken. The point has been referred to in a number of subsequent cases before single justices of the Court where they have regarded themselves as obliged to follow the view adopted by Williams J., leaving it to a Full Court to re-examine the matter if the necessity should arise. See per Windeyer J. in *Sunbeam Corporation v. Morphy-Richards (Aust.) Pty. Ltd.*¹⁷ and per Gibbs J. in *Universal Oil Products Co. v. Monsanto Co.*¹⁸ each expressing some doubt on the matter. I referred to the point in *Meyers Taylor Pty. Ltd. v. Vicarr Industries Ltd.*¹⁹ and in *Graham Hart (1971) Pty. Ltd. v. S. W. Hart & Co. Pty. Ltd.*²⁰. The latter case was before the Full Court but it was not necessary for the purpose of deciding it to deal with the question of whether the decision in *Allmanna Svenska* is properly applicable to the *Patents Act 1952*.

In the present case it is desirable, that that question should be put at rest. In order to examine it, a consideration of the history of the English and Australian Patents Acts is necessary.

Section 26 of the *Patents, Designs, and Trade Marks Act, 1883 Imp.* provided that a patent might be revoked on a petition to the Court and in sub-s. (3) the single ground was stated as follows:

Every ground on which a patent might, at the commencement of this Act, be repealed

¹⁶ (1958) 98 C.L.R. 529.

¹⁷ (1961) 35 A.L.J.R. 212, at pp 217-219.

¹⁸ (1972) 46 A.L.J.R. 658, at pp. 659-660.

¹⁹ (1977) 137 C.L.R. 228, at pp. 236-237.

²⁰ (1978) 141 C.L.R. 305, at p. 329.

by *scire facias* shall be available by way of defence to an action of infringement and shall also be a ground of revocation.

That section did no more than continue in operation the existing common law. In Australia the *Patents Act 1903* dealt with revocation in s. 86 (3) in the same manner, as follows:

Every ground on which a patent might at common law be repealed by *scire facias* shall be available as a ground of revocation.

The *Patents, Designs, and Trade Marks Act, 1883 Imp.* was repealed by the *Patents and Designs Act, 1907 Imp.* which however reproduced in s. 25 (2) that provision in the same form as the 1883 Act. By the *Patents and Designs Act, 1932 Imp.* s. 25 (2) was substantially amended. The new sub-section set out in detail the various grounds upon which a patent might be revoked and concluded with the precautionary words "and upon any other ground upon which a patent might, immediately before the first day of January 1884, have been repealed by *scire facias*". Paragraphs (a) to (p) have been treated as doing no more than reproducing and restating the grounds formerly available at common law—see per Lord Macmillan in *Mullard Radio Valve Co. Ltd. v. Philco Radio and Television Corp. of Great Britain Ltd.*²¹ and per Lord Diplock in *Bristol-Myers Co. v. Beecham Group Ltd.*²².

In Australia however s. 86 (3) of the *Patents Act 1903* was not changed until 1952. During the 1930s a committee under the chairmanship of Sir George Knowles presented four reports upon the *Patents Act* and drew up a Bill to give effect to its recommendations. That Bill was introduced into the Parliament in 1939 but the outbreak of war prevented its enactment. A further committee was appointed in 1950 and is referred to below.

In 1944 a committee (the Swan Committee) was appointed in England to consider what changes in the *Patents and Designs Act, 1932 U.K.* were desirable and it reported in 1947.

²¹ (1936) 53 R.P.C. 323, at p. 329.

²² [1974] A.C. 646, at p. 679.

The report of the Swan Committee led to the passing of the *Patents Act, 1949 U.K.* which introduced among other changes the provisions relating to priority dates. The Swan Committee recommended that pars. (e) and (f) of the grounds for revocation should be as follows:

(e) That, subject as in this sub-section provided, what is claimed in any claim of the complete specification was not new.

(f) That what is claimed in any claim of the complete specification was obvious and did not involve any inventive step, having regard to what was known or used before the priority date of the said claim.

However in the *Patents Act, 1949 U.K.* those grounds of objection were expressed differently.

Thus par. (e) of s. 32 was as follows:

that the invention, so far as claimed in any claim of the complete specification, is not new having regard to what was known or used, before the priority date of the claim, in the United Kingdom;

and par. (f) was as follows:

that the invention, so far as claimed in any claim of the complete specification, is obvious and does not involve any inventive step having regard to what was known or used, before the priority date of the claim, in the United Kingdom;

Thus the words which previously formed part of the ground of obviousness were added to the previous wording of the ground of novelty. That language however was not adopted in the *Australian Patents Act 1952*.

Possible reasons for this difference in language between those grounds as set out in the *1932 United Kingdom Act* and as set out in the *1949 United Kingdom Act* are discussed in Mr. Gratwick's interesting paper entitled *Having Regard to What Was Known and Used*, *Law Quarterly Review*, vol. 88 (1972), p. 341. It is clear however that the report of the Swan Committee cannot be used to elucidate the reasons for the change, because it did not recommend it. Moreover, whatever those reasons may have been, it is equally clear that they have no bearing on the proper construction of the provisions of s. 100 of the *Patents Act 1952* for the provisions are not the same; the *Australian Act* being in substantially the same form as the recommendation of the Swan Committee, the differences not being relevant for present purposes.

The Swan Committee's report and the *1949 United Kingdom Act* were available to a subsequent committee established in Australia, of which Mr. Justice Dean was the chairman. It was set up

in 1950 and reported in 1952. The *Patents Act 1952* reproduces the Bill recommended by the Dean Committee, virtually without alteration. The earlier committee had considered the *Patents and Designs Act, 1932 U.K.* and in par. 97 it referred to the provisions in s. 25 (2) of that Act and prepared a Bill which attempted to define exhaustively the grounds upon which a patent might at common law be repealed by scire facias. The Bill so prepared copied the English "drag-net" provision which expressly incorporated anything else which might have been available under scire facias. The Dean Committee recommended that the present s. 100 be adopted which reproduces substantially the provisions of s. 25 (2) of the *Patents and Designs Act, 1932 U.K.* though the language differs in a number of respects. However pars. (e) and (f) of s. 25 (2) of the *1932 United Kingdom Act* were adopted without any material change save for the addition of the references to the priority date. The Dean Committee recommended some minor changes and said in par. 25:

In 1932 the *British Act* set out the grounds upon which a patent might be revoked. In the previous report it was recommended that these be adopted, and that the same grounds should be available to a defendant setting up the invalidity of the patent as a defence to an action for infringement. We agree with this recommendation and at the same time we have attempted to define the various grounds with precision.

The Bill as recommended by the Dean Committee did not contain the "drag-net clause" and was enacted in the form as recommended.

Having regard to the history of the legislation it is necessary to return to the decision of Williams J. in the *H.P.M. Case*²³. It is clear from the passages quoted above from his judgment that he regarded s. 100 of the *Patents Act 1952* as having made a substantial change in the pre-existing law for he says that prior to that Act it was not legitimate to have regard to any and all prior publications, including prior specifications, as well as upon common general knowledge and articles in common use.

He failed to advert to the fact that the words in the *Patents Act 1952* were for all material purposes identical with those of the *1932 United Kingdom Act* which Lord Macmillan had said in 1932 reproduced the common law. It also appears from the reasons for judgment²⁴ that the

²³ (1957) 98 C.L.R. 424.

²⁴ (1952) 98 C.L.R., at p. 441.

case for the defendant in the *H.P.M. Case* was based, not upon prior published specifications or any combination of them, but upon evidence of common general knowledge in the relevant art. Williams J. said however that the decisions in *Allmanna Svenska*²⁵ and *Martin and Biro Swan Ltd. v. H. Millwood Ltd.*²⁶ required that prior publications not forming part of common general knowledge should be taken into account. From the nature of the issue it is clear that it was not necessary so to decide in order to deal with the case itself. Indeed Williams J. made an express finding²⁷ that the information relied upon had become part of common general knowledge of those engaged in the particular art. Accordingly his observations on this point must be regarded as obiter dicta.

For those reasons I am satisfied that we should not regard the observations of Williams J. in the *H.P.M. Case* as correctly stating the law in Australia. It is not a matter of overruling the decision because, as I have said, it was based upon a different ground. The dicta however should not be followed.

Williams J. did not deal expressly with the question whether in the case of an allegation of obviousness it is possible to "make a mosaic" out of existing publications not forming part of common general knowledge but it is nonetheless clear that he regarded such a course as open in view of the contrasting statement quoted above on novelty. The notion of common general knowledge itself involves the use of that which is known or used by those in the relevant trade. It forms the background knowledge and experience which is available to all in the trade in considering the making of new products, or the making of improvements in old, and it must be treated as being used by an individual as a general body of knowledge. I do not with respect think that it is correct to describe that process as the making of a mosaic although it has often been so described, a usage which however may be misleading. The process of applying such common general knowledge to the solution of a problem is not a process of picking out individual pieces of information and combining them, including inferences from known facts and known principles, as well as the application of such principles. The making of a mosaic prohibited in the case of an allegation of want of novelty is the picking out of individual items

²⁵ (1952) 69 R.P.C. 63.

²⁶ [1956] R.P.C. 125.

²⁷ (1952) 98 C.L.R., at p. 441.

of information from prior publications or prior objects and assembling them together so as to give them an appearance of unity and then alleging that such mosaic reveals the very thing claimed. That is an understandable, though not a permissible, process.

In the case of alleged lack of an inventive step the question of making a mosaic must operate (if at all) in a very different matter. An allegation of want of inventive step is not made out by saying you may take one or two, or twenty-one or twenty-two, prior publications and then select from them appropriate extracts or pieces of information, which will add up to the invention claimed and so demonstrate that it was obvious. So to proceed is to mistake the nature of an invention and the nature of the objection of obviousness. The question is, is the invention itself obvious, not whether a diligent searcher might find pieces from which there might have been selected the elements which make up the patent. If this were not so, there could never be a valid patent for a new combination of old integers. The proper question is not whether it would have been obvious to the hypothetical addressee who was presented with an ex post facto selection of prior specifications that elements from them could be combined to produce a new product or process. It is rather whether it would have been obvious to a non-inventive skilled worker in the field to select from a possibly very large range of publications the particular combination subsequently chosen by the opponent in the glare of hindsight and also whether it would have been obvious to that worker to select the particular combination of integers from those selected publications. In the case of a combination patent the invention will lie in the selection of integers, a process which will necessarily involve rejection of other possible integers. The prior existence of publications revealing those integers, as separate items, and other possible integers does not of itself make an alleged invention obvious. It is the selection of the integers out of, perhaps many possibilities, which must be shown to be obvious.

It is in relation to this process that the misuse of hindsight is most common. When once an idea or an object or a process or a combination, admittedly novel, has been published, it is very easy to say after perhaps months of search and study in the Patent Office and the public libraries that the integers into which the patent might be dissected could be found scattered amongst the prior documents by a person who already knew the solution to the problem and therefore knew what to look for and what to discard. But that process does not demonstrate lack of an inventive step. The opening of a safe is easy when the combination has been already provided.

It is pointless to say, as some witnesses did in the present case that given the description in the claims in the patent they could with the aid of some prior specifications have produced the end product. This is an extreme example of the ex post facto dissection of an invention which has been vigorously criticized in many courts.

It is worth quoting yet again the words of Fletcher-Moulton L.J. in *British Westinghouse Electric and Manufacturing Co. Ltd. v. Braulik*²⁸ where he said:

I confess that I view with suspicion arguments to the effect that a new combination, bringing with it new and important consequences in the shape of practical machines, is not an invention, because, when it has once been established, it is easy to show how it might be arrived at by starting from something known, and taking a series of apparently easy steps. This ex post facto analysis of invention is unfair to the inventors, and in my opinion it is not countenanced by English Patent Law.

Similar statements may be found in many cases; see, e.g., per Latham C.J. in *Palmer v. Dunlop Perdriau Rubber Co. Ltd.*²⁹

It may be observed that in the cases where obviousness is in issue very often the larger the number of prior publications which are relied upon as together establishing absence of an inventive step, the more likely it is that the alleged invention was not obvious for the wider one has to look to find all the integers the less likely it is that it would have been obvious to put them together in the particular manner in which the inventor did.

It may be noted that even in England where the process of making a mosaic out of prior publications is regarded as permissible under the *Patents Act 1949* it is still necessary that the mosaic must be one which "can be put together by an unimaginative man with no inventive capacity"—see per Lord Reid in *Technograph Printed Circuits Ltd. v. Mills and Rockley (Electronics) Ltd.*³⁰

²⁸ (1910) 27 R.P.C. 209, at p. 230.

²⁹ (1937) 59 C.L.R. 30, at pp. 60-61.

³⁰ [1972] R.P.C. 346, at p. 355.

There may be some fields of endeavour in which those who work therein study and make themselves familiar with all patent specifications as they become available for inspection in one or in many countries so that what was contained therein becomes common general knowledge in that particular trade or field of manufacture in the country in question. Examples are provided by *Vidal Dyes Syndicate Ltd. v. Levinstein Ltd.*³¹ and *British Celanese Ltd. v. Courtaulds Ltd.*³² Indeed in the present case it appears that the first appellant in its establishment in the United States at one time had employees who did just this in the field of adhesives. But this is not so in all fields or in all countries. There was no evidence in the present case that those working in Australia in the field of adhesives or of surgical tapes followed such a practice or that any of the specifications relied upon was part of the common general knowledge of those working in these fields in Australia.

The respondent relied upon a number of prior specifications which had been available in Australia for public inspection before the priority date as providing a basis for the argument that the invention claimed was obvious. For the reasons which I have set out above I do not regard such specifications as capable of sustaining that argument without evidence that they were part of common general knowledge at that time. There was no such evidence and accordingly it is not necessary for me to examine those specifications. I turn therefore to the question of obviousness without reference to the prior publications.

The respondent provided no evidence of the state of relevant common general knowledge in Australia. Some evidence was given by the appellants' witnesses of the kind of tapes in use before the priority date and of their disadvantages which demonstrated the nature of the advance made by the invention. This evidence related to the use of surgical tapes in hospitals and in medical practice, and showed the nature of the advance which this invention made over the products then on the market and in use at the priority date. This evidence showed what kind of products would have been the common general knowledge in Australia as well as the nature of the problem awaiting solution.

³¹ (1912) 29 R.P.C. 245 at pp. 279-280.

³² (1933) 50 R.P.C. 259, at p. 280.

Sister Stahl who was Assistant Matron in charge of operating theatres at Sydney Hospital gave evidence that she had trained at Sydney Hospital from 1956-1960 and continued there as a Theatre Sister until 1964. From 1964-1968 she was the Supervisor of the Cardiac and Neurosurgery Operating Theatres and in 1968 became the Charge Sister of Operating Theatres and in 1971, Assistant Matron in charge of theatres at Sydney Hospital. She said that when she first began nursing, zinc oxide strapping and sticking plaster were used as surgical tapes and she stated that the disadvantages of the older types of tape were that it was extremely difficult to remove and this took up nursing time and caused a strain on nurses and on patients. She said that it could often be removed only with the aid of ether or a solvent, both of which were painful to patients. She said that irritation from the older tapes was common and generally a residue of adhesive was left on the skin and in addition many patients were allergic to the material. She said that this caused problems, particularly where wounds required frequent changing of dressing, and that the older type surgical tapes caused difficulty as well as occupying substantial amounts of nursing time. She also said with the older types of tape the skin often softened and became macerated. She said that she became aware of Micropore tape in the early 1960s and found it easy to remove and less painful from the point of view of the patient. She found it useful where dressings had to be frequently changed in that it avoided allergies and irritations to the skin and avoided maceration of the skin. She said it reduced the time and trouble needed to remove wound dressings. She also said that it was easier to handle in the operating theatre and that it had replaced the old zinc oxide tapes.

Mr. Rose, a surgeon practising in Sydney also gave evidence. He had numerous qualifications in surgery, being a Fellow of the Royal College of Surgeons of England and of the Royal Australian College of Surgeons and the American College of Surgeons. He had for a substantial time been Honorary Surgeon at the Royal North Shore Hospital and other hospitals. He said that he first became aware of Micropore tape in approximately 1963-1964 and that prior to that time during his experience as a surgeon since graduating in 1933 the type of tape used was that known as "Elastoplast" or its equivalent which consisted of a woven backing applied to which was an adhesive generally containing zinc oxide. He said the disadvantages of those tapes were that they caused irritation to patients on application and removal and that in about ten per cent of cases caused allergic reactions or blistering. They did not permit the skin to breathe and irritation of the skin resulted and the risk of infection was increased. He said that because of those disadvantages it was necessary to disturb dressings sooner than was desirable and that as it was not possible to see through the tapes discharge from wounds was not visible, and the

process of healing could not be estimated. He also said that they were difficult to handle with rubber gloves in an operating theatre because of the extreme stickiness and they had to be cut with scissors. He said that since about 1963-1964 he had used Micropore tape and that its usage had increased to the extent that it was used for all dressings after operations in the vast majority of cases. He said that it had a number of advantages including that under normal conditions of surgical use it did not stretch with normal hand pulling but could be easily torn. He stated that it did not irritate the skin with normal patients in any way and that all pores in it allowed sweat and other secretions of the skin or the wound to seep through and evaporate and that the progress of healing could be observed to a "fair extent". He also said that it was easier to handle in the operating theatre with rubber gloves and that the fact that the skin could breathe through the minute pores was one of its great advantages, whilst the fact that it permits skin closures without stitches where there are small wounds was also a great advantage. Finally he stated that use of Micropore had obliterated complaints which he had heard for many years from patients and other practitioners arising out of the defects of the older type of surgical tape.

Dr. Rose also produced two articles from the *Lancet*, a well known medical journal circulating in Australia, written in 1955 and 1956 indicating the need for a porous tape with a less difficult and irritating adhesive and pointing out that existing so-called porous dressings were only partially porous. The fact was however that more than four years went by before the present invention was made in the United States and the patent applied for in Australia. The evidence shows however that its merits were readily recognized in Australia and it had come into very common use at least by the middle of the 1960s. The publications produced by Mr. Rose demonstrated that a breathable surgical tape with a non-irritating adhesive was known to be desirable, but the problem of producing such a tape remained unsolved until the present invention was made in 1959. Neither Sister Stahl nor Mr. Rose was cross-examined. The remaining witness on the state of the art in Australia at the priority date was Mr. Thomas who was formerly employed in Australia by Johnson and Johnson Pty. Ltd., manufacturers of surgical dressings and sutures. He said that prior to 1960 some nonwoven surgical products were just coming into use. Examples to which he referred were drapes, used to mask off areas adjoining an operative site, hand towels and some surgical dressings. He said that prior to 1960 there were no products having both an adhesive and a nonwoven backing in use in Australia.

The evidence as to the position in Australia at the priority date thus shows that there was a known need for an improved adhesive surgical tape, the existing adhesive tapes having well

known disadvantages. The advantages of a "breathable" tape had been known at least since 1955 but that need had not been satisfied by any product on the market or disclosed in the medical field or in the field of the suppliers of surgical supplies, including tapes. That evidence further shows that when introduced on the market this tape met that need, and had substantial commercial success, notwithstanding that it may have been slow to "take off" because of price. These are well recognized indications of inventiveness though they are not in themselves decisive. In the present case however they contribute to the conclusion that there was an inventive step. There was nothing in common general knowledge which pointed to this solution to the known problem which awaited solution.

It appears that before the trial judge there was no argument presented on the objection that the patent had been anticipated by some prior publication and no such argument was presented before this Court at the hearing. However in written argument submitted by the respondent in reply a submission was made which was expressed in terms both of anticipation and obviousness. It is not altogether clear whether it was intended to raise the question of anticipation but it is desirable to deal with it as if it did raise that point. I am satisfied that the Salditt patent did not deprive the invention of novelty because, although it discloses some of the integers of the combination it does not disclose all of them. Because the information contained in the Salditt specification was not common general knowledge in Australia at the relevant time I do not need to examine it in relation to obviousness.

It was no doubt the discovery of the Ulrich adhesive which was the first step towards a suitable non-irritating adhesive but the Ulrich patent, even assuming it to be common general knowledge in Australia at the relevant time, did not reveal anything about the capacity of that adhesive to become or to be made microporous. The existence of that adhesive does not make the combination of integers in claims 7, 8 and 9 obvious. The further steps to the combination were not obvious.

For those reasons I am of opinion that claims 7, 8 and 9 of the patent were valid and have been infringed. I would allow the appeal and dismiss the respondent's cross-appeal.

WILSON J:

I would allow the appeal and dismiss the cross-appeal for the reasons given by Aickin J.

My conclusion as to inextensibility is supported by personal examination of the Leukopor tape and backing.