

59/92

Case No 519/89

IN THE SUPREME COURT OF SOUTH AFRICA

(APPELLATE DIVISION)

In the matter between:

SAPPI FINE PAPERS (PTY) LIMITED...

Appellant

and

I C I CANADA INCORPORATED..... Respondent

CORAM: CORBETT CJ, E M GROSSKOPF, NESTADT, VIVIER, JJA
et NICHOLAS AJA.

DATES OF HEARING : 24, 25 & 26 February 1992

DATE OF JUDGMENT: 30 March 1992

J U D G M E N T

CORBETT CJ:

The respondent in this appeal, I C I Canada Incorporated (formerly C I L Incorporated and hereafter referred to as C I L), a Canadian corporation, is and at all material times has been the patentee of South African patent no 76/5250 for an invention entitled "Delignification Process". The patent was granted on a convention application which was lodged at the patent office on 1 September 1976. The application for the protection of the invention in the convention country (Great Britain) was made on 5 September 1975.

Towards the end of 1984 C I L instituted action against the appellant, Sappi Fine Papers (Proprietary) Limited ("Sappi") in the Court of the Commissioner of Patents, alleging that Sappi was and had been infringing

certain of the claims in patent no 76/5250 ("the patent in suit") and claiming an interdict and certain other relief, including an inquiry as to damages. Sappi defended the action, denying infringement and damages, and it also counterclaimed for the revocation of the patent in suit, alleging that it was invalid upon a number of grounds.

The case was heard by Van Zyl J as Commissioner. After a lengthy trial he non-suited C I L on the infringement issue and dismissed its claim. In regard to the counterclaim the learned Commissioner upheld two of Sappi's grounds of invalidity, viz material misrepresentation and anticipation, and made an order revoking the patent in suit. The finding of anticipation related to only six of the twelve claims of the patent in suit (Sappi claimed that two other claims, nos 9 and 11, were also anticipated) and was made in respect of only one of four alleged anticipatory documents, viz a

printed publication known as "the Swedish Honshu" patent application. Because Sappi failed in establishing several of the grounds of invalidity claimed by it, including inutility, ambiguity and insufficiency, and was partially unsuccessful on the issue of anticipation, the Commissioner made an order granting Sappi only two-thirds of its costs in respect of the claim and the counterclaim.

C I L appealed successfully to the Transvaal Provincial Division ("TPD"), which set aside the order of the Commissioner and substituted one interdicting Sappi from infringing claims 1, 3, 4, 5, 6, 9 and 11 of the patent in suit, ordering an inquiry as to damages and dismissing Sappi's counterclaim. The TPD granted Sappi leave to appeal against the order interdicting the infringement of the aforementioned claims, against the order dismissing the counterclaim for revocation (but

only in respect of the ground of material misrepresentation) and against the consequential order for costs. On a petition to this Court leave to appeal was given in respect of a further ground of revocation, viz anticipation by the Swedish Honshu patent application.

There are thus three main issues on appeal: infringement, material misrepresentation and anticipation by the Swedish Honshu patent. Before considering these issues it is necessary, however, to sketch the general industrial background to the invention which forms the subject-matter of the patent in suit and to examine the patent specification..

Background

The invention of the patent in suit relates to a process for the delignification of lignocellulosic material, such as wood, straw and bagasse (the residue after extracting the juice from sugar cane) undertaken in order to produce cellulose suitable for the

manufacture of paper products. As this case relates to the process as applied to wood I shall omit further reference to straw and bagasse.

Wood is composed mainly of hairlike fibres, consisting primarily of cellulose, which are bound together by a substance known as lignin. Cellulose is a sugar polymer with a very long molecular chain. Lignin is also a polymer and similarly has a long molecular chain. In wood the cellulose and the lignin are intermixed to form a solid matrix with a rigid structure. There is a third minor component of most woods, comprising gums and oils, but these may be disregarded. Woods are classified into soft woods and hard woods. Soft woods are derived from trees of the conifer class, whereas hard woods come from certain types of deciduous trees. Soft woods contain much longer fibres than hard woods, but both are valuable in the making of paper products.

In order ultimately to produce paper it is necessary that the wood be pulped. There are basically two methods of pulping: mechanical pulping and chemical pulping. Mechanical pulping is achieved by grinding, using stone mills. It does not involve delignification and it produces a pulp suitable for making newsprint. In the case of chemical pulping, on the other hand, delignification is the object of the process and it produces pulps suitable for a wide range of paper-making. There is also a hybrid process called semi-chemical pulping. In this matter, however, we are concerned only with chemical pulping.

Delignification in terms of chemical pulping involves the removal from the wood of the lignin and the other non-cellulosic components, such as gums. It is achieved by means of a process known as "digesting" or "cooking", in which the wood (usually in the form of chips) is placed in a vessel, called a "digester",

together with a chemical agent in an aqueous solution, known as the 'pulping liquor', and the contents of the digester are heated under pressure for a chosen period of time. During this process the liquor penetrates the wood and reacts with the lignin and takes it into solution, leaving the wood fibres relatively lignin-free (depending on the degree of effectiveness of the cooking process). When the cook is complete the liquor (with the lignin in solution) is separated from the cellulose, which then constitutes the wood pulp available for paper-making. Different types and concentrations of chemical agents in the liquor and different conditions and methods pertaining to the cook will produce varying degrees of delignification; and in general the greater the degree of delignification the higher will be the quality of the paper produced by the wood pulp.

One of the problems inherent in the chemical pulping process is that while the delignification is

taking place the cellulose fibres themselves are to some extent degraded and in particular tend to undergo a process known as 'peeling', which has the effect of shortening the molecular chains, thereby decreasing the yield of cellulose and reducing the strength of the pulp produced. For many years it has been the object of research chemists in the pulping field to devise ways and means of controlling or eliminating the peeling reaction and of removing the lignin while minimising the degradation of the cellulose in the fibres.

Chemical pulping processes fall into two main categories, based on the ingredients of the pulping liquor. These are (i) the acid, which uses an acid pulping liquor and of which the sulphite process is an important example; and (ii) the alkaline, which uses an alkaline pulping liquor and of which the soda and kraft (or sulphate) processes are the best known. This case is concerned only with the alkaline processes.

The soda process involves the use of a liquor containing sodium hydroxide (popularly known as caustic soda); while the kraft process employs a mixture in solution of sodium hydroxide and sodium sulphide. There is also a modification of the kraft process, which involves the inclusion in the pulping liquor of polysulphide, but this does not call for separate consideration.

The soda process is the oldest of the alkaline processes, but the kraft process, which was subsequently invented, was found to have the advantage of producing 'stronger' pulp (hence the name 'kraft', meaning in German strong). On the other hand, the kraft process has the side-effect of producing a very obnoxious odour, which tends to pollute the atmosphere. The soda process does not have this side-effect, but the process is inclined to degrade the cellulose faster than the Kraft process does and consequently produces an inferior pulp.

There are fundamentally two types of cooking or digestion used in pulping: batch digestion and continuous digestion. In the case of the batch digestion the process consists of a single complete operation, which may be repeated as often as required. Typical apparatus for batch digestion consists of a large cylindrical metal vessel, which stands upright and which is connected by pipes to a circulation pump and a heat exchanger. At the bottom of the cylinder is a "blow" valve, connected to a blow line. The batch digester is operated by filling the vessel with wood chips to the desired level and then pumping in cooking liquor, which enters the vessel at the top. When the appropriate amount of liquor is in the digester, it is closed up. (Usually the proportion of liquor to wood chips would be between 3:1 and 5:1.) Thereafter the circulation pump is brought into operation and this causes the liquor to be drawn off at a point called "the circulation screen"

near the bottom of the vessel, to pass through the heat exchanger, where it is heated, and to re-enter the vessel at the top. The liquor continues to circulate in this way and the temperature thereof to be raised until the desired maximum is reached. This temperature is then maintained for a desired period of time. The period during which the contents of the digester are being heated up to the maximum temperature, which could be from 35 to 120 minutes, is known as the "time to temperature"; and the period during which the maximum temperature is maintained, which varies considerably but on average could be about 90 minutes, is known as the "time at temperature". A typical maximum temperature would be 170°C. Attainment of this temperature causes a high pressure - of the order of seven times atmospheric pressure - to build up inside the digester. When the cooking process is complete the blow valve at the bottom of the vessel is opened and by reason of the pressure

build-up within the system the contents of the vessel are ejected or blown through the valve and the connected blow line into a blow tank. In the blow tank the delignified pulp is separated from the lignin-containing liquor (called "black liquor", in contrast to fresh or unused liquor, which is called "white liquor") and the pulp is washed. The pulp is then ready for use or for other treatment, such as bleaching.

The continuous digestion process, which is a more recent development than the batch digestion process, involves essentially the same steps, i e applying a pulping liquor to the wood, raising temperature to a maximum temperature, maintaining that temperature for a period, ultimately blowing out the pulp and the liquor and then washing. The difference between the two processes lies in the fact that in the continuous digestion process the wood and liquor is not closed up within a specific vessel. The continuous digester may

be likened to a large pipe in which wood and liquor are continuously being fed at one end and pulp and black liquor are continuously emerging at the other end. It is part of the engineer's art to design the apparatus required to accomplish this.

The Specification

The body of the specification commences with the announcement that "this invention" relates to a process for the delignification of lignocellulosic material such as wood, straw and bagasse. It then goes on to describe the need for delignification in order to produce cellulose suitable for the manufacture of paper and to express a preference for reagents which attack the lignin without appreciably affecting the cellulose component. Mention is made of the kraft process, the soda process and a "soda-oxygen" process patented in Canada in 1972, which produces a pulp yield comparable to that of the kraft process. It is pointed out, however,

that although these processes are effective in the removal of lignin, they also cause the cellulose component of the material used to be attacked to a certain degree, resulting in the lowering of yields and the degradation of the product. Long cooking times and low yields render the soda process unsuitable for pulping coniferous woods; and even in the case of hard woods the yields from the soda process are usually inferior to those achieved by the kraft process. On the other hand, a serious disadvantage of the kraft process is the air pollution which it causes.

The specification then refers to a recent publication by Bach and Fiehn and a related East German patent, which disclose the use of anthraquinone-2 monosulphonic acid ("AMS") as a means of improving yields in the soda process. AMS, when used as an additive in the first stage of the soda-oxygen process, results in yields superior to those of the kraft process

and the pulp possesses strength properties comparable to that of the kraft process. Disadvantages of the soda-AMS pulping process are that it also causes an obnoxious odour and that the economic advantages resulting from higher yields are largely offset by the relatively high cost of AMS.

The specification then describes the invention:

"It has now been found that ligno-cellulosic material can be delignified in high yield by a process which comprises a digestion with an alkaline pulping liquor in the presence of a cyclic keto compound selected from the group consisting of naphthoquinone, anthraquinone, anthrone, phenanthrenequinone, the alkyl, alkoxy and amino derivatives of said quinones, 6,11 dioxo-1H-anthra 1,2-c pyrazole, anthraquinone-1,2- naphthacridone, 7,12-dioxo-7,12 - dihydroanthra 1,2-b pyrazine 1,2 benzanthraquinone and 10-methylene anthrone. Optionally the digestion with alkaline, pulping liquor may be followed by a second stage digestion in alkaline medium with oxygen or an oxygen-containing gas under pressure."

(For convenience I shall refer to the group of compounds nominated, commencing with naphthoquinone, as "the selected compounds".)

The specification proceeds to aver that this "novel process" provides pulp in higher yield at an increased rate of delignification in comparison to similar processes without the additive; that it has the advantage over the process using AMS of not causing air pollution; that the concentrations of the selected compounds required are at "an economically advantageous level" and are often less than those required with AMS. The specification then sets out the objects of the invention as follows:

"Thus the main object of the invention is to provide a pulping process which gives an increased yield of cellulosic pulp. Another object is to provide a pulping process having an increased rate of delignification, thus permitting a lower energy consumption and a higher throughput. A further object is to provide a pulping process which has a

lower pollution potential. Additional objects will appear hereinafter."

This statement of objects is followed by the consistory clause describing the invention, which comprises two steps. Since claim 1 of the invention follows faithfully the wording of the consistory clause and will be fully set forth it is not necessary to quote the latter. After the consistory clause it is stated that

" The lignocellulosic material produced by the above two steps may be used without further treatment or may be subjected to conventional bleaching steps.

Alternatively, the lignocellulosic material may be subjected to the following additional treatment steps:

(3) treatment of the material in aqueous suspension at a consistency of 2% to 40% by weight for 0.5 to 60 minutes at 20°C to 90°C with 2% to 20% by weight of an alkali metal base, and

(4) treatment of the alkaline material in aqueous medium at a consistency of from 3.0% to 40% by weight with oxygen or an oxygen-containing gas for 0.5 to 120 minutes at a temperature of 80°C to 150°C and a partial pressure of oxygen of 20 to 200 pounds per square inch."

The remainder of the body of the specification consists of further elaboration of the invention and its application, descriptions of preferred embodiments and the illustration of the invention and its advantages by means of examples consisting of laboratory tests done with reference to various embodiments of the invention.

I come now to the claims and I set forth claim 1 divided into what it is common cause are its basic integers:

- (a) A process for the delignification of ligno-cellulosic material comprising the steps of
- (b) treating the cellulosic material in a closed reaction vessel
- (c) with an alkaline pulping liquor
- (d) containing from 0.001% to 10% by weight based on the cellulosic material of a cyclic keto compound

- (e) selected from the group consisting of (then follow the selected compounds as listed above)
- (f) the treatment taking place at a maximum temperature in the range of from 150°C to 200°C for a period of 0.5 to 480 minutes, and
- (g) displacing the pulping liquor from the lignocellulosic material with water or an aqueous liquor inert to the lignocellulosic material.

(As the claim is set forth in the specification step (1) comprises integers (b), (c), (d), (e) and (f), while step (2) consists of integer (g).)

Of the further eleven claims only two need be described in any detail. In its infringement action respondent relies on claims 1, 3, 4, 5, 6, 9 and 11 only. Claims 3, 4, 5 and 6 are all based on claim 1 and are narrower in scope. It is common cause that if respondent cannot succeed on the infringement issue on the basis of claim 1 it must equally fail on the basis of

claims 3, 4, 5 and 6. Claim 9 claims a process as claimed in claim 1 "wherein the lignocellulosic material is subjected to the following additional steps..." and then follow steps (3) and (4) described in the body of the specification and quoted above. Claim 11 claims a process as claimed in claim 9 "wherein the oxygen-treated cellulosic material is subjected to conventional bleaching".

Interpretation of the Specification and Infringement

Before analysing and interpreting the specification, more particularly claim 1 thereof, I propose to make brief reference to Sappi's alleged infringement in order to identify the areas of dispute between the parties and the issues which arise in regard to the question of interpretation. (Cf Selero (Pty) Ltd and Another v Chauvier and Another 1984 (1) SA 128 (A) at 137 F - H.)

Sappi is one of the largest manufacturers of pulp and paper in South Africa. It conducts its operations at mills located in different parts of the country. One of these is the Enstra Mill at Springs. C I L'S case on infringement is limited to what happens at the Enstra mill. This mill was converted to the soda process in 1978. It is admitted in effect by Sappi that the process employed at this mill consists of batch digestion in a vessel filled with wood chips, to which is added soda pulping liquor, the volume of which amounts to about 70% of the volume of the digestion vessel. The liquor contains more than 8% of effective alkali and is an alkaline pulping liquor. Anthraquinone ("AQ") - one of the selected compounds - in solid powder form, constituting 0,05% - 0,06% by mass of the dry wood, is introduced into the vessel. The vessel is closed and the heating-up process takes place in the conventional manner. The time to maximum temperature of 170°C is

about 90 minutes and this temperature is maintained for 30 to 40 minutes (time at temperature). Thereafter the contents of the vessel are blown in accordance with conventional practice. Bleachable grade pulp is obtained which is then bleached in various ways, including oxygen bleaching.

Prima facie these facts would seem to bring the process employed at the Enstra mill within the integers of claim 1. A difficulty arises, however, by reason of what is now known or thought to be known about the chemical reactions which take place in the digester during the cooking process. In short, and without going into too much chemical detail, the position is as follows.

AQ, the additive used by Sappi, is virtually insoluble in aqueous systems. Consequently when it is first introduced into the digester it does not dissolve in the pulping liquor: it simply floats or possibly is

suspended therein. As the process proceeds, however, the AQ undergoes a chemical transformation by reason of what is termed a "redox reaction". "Redox" is a word formed by combining the words "reduction" and "oxidation" in order to describe the concomitant occurrence of reduction and oxidation. Reduction of a compound takes place when hydrogen atoms (or electrons of some kind) are gained by it; and oxidation when hydrogen atoms (or electrons of some kind) are removed. During the cooking process and by reason of the presence of organic components in the liquor the AQ is reduced by gaining a hydrogen atom to form semi-anthraquinone ("semi-AQ"). This is an intermediate step, for subsequently a further hydrogen atom is gained by the semi-AQ and anthrahydroquinone ("AHQ") is formed. Thereafter, by an oxidation process involving the loss of the hydrogen atoms the AHQ is converted back to AQ, possibly via the semi-AQ form. During this oxidation process the lignin itself is

reduced and becomes solubilised, which is the aim of the chemical pulping process. These two processes, reduction and oxidation, proceed side by side.

There are two very important scientific truths relating to AHQ. The first is that AHQ, unlike AQ, is highly soluble in an alkaline liquor. It is clear that a compound which is insoluble will not easily react with wood, itself insoluble. The conversion of AQ to AHQ accordingly enables the latter to go into solution, to penetrate the wood chips in the digester, to react with the lignin and to facilitate and speed up the delignification process. The AHQ also counteracts peeling. This conversion from AQ to AHQ is, therefore, an essential feature of the invention. The second truth is that neither semi-AQ nor AHQ is a cyclic keto compound. A fortiori neither of them constitutes or falls under any of the selected compounds. Herein lies the kernel of Sappi's defence to the infringement action.

Also of cardinal importance to Sappi's defence is the undisputed expert evidence with reference to the process at the Enstra mill (i) that the major delignification takes place at maximum temperature; (ii) that during the time to temperature the AQ is progressively converted to AHQ so that by the time that maximum temperature is reached the amounts of AQ left in the pulping liquor would not be substantial and at the end of the time at temperature the amounts would be minimal; (iii) that during the process of digestion it is not possible to determine at any particular time what the concentration of AQ in the pulping liquor is; and (iv) that after the termination of the digestion process and the emergence of the liquor from the digester the semi-AQ and AHQ, immediately upon contact with the air, are oxidised and revert to AQ, thus preventing any measurement at that stage in order to determine what

concentration of AQ was in the pulping liquor during the digestion process.

In the light of these facts Sappi contends that no infringement is shown to have occurred by reason of what is done at the Enstra mill. Its defence may be summed up as follows:-

(a) Claim 1 of the patent in suit, properly interpreted, means that during the process of treatment the alkaline pulping liquor must contain a prescribed concentration of a cyclic keto compound, and more particularly one of those included in the group of selected compounds.

(b) While, at the Enstra mill, the compound initially added to the alkaline pulping liquor before digestion commences is one of the selected compounds, viz AQ, as the treatment

proceeds this AQ is converted into semi-AQ and AHQ, which are not cyclic keto compounds.

(c) It is not possible at any given time during the process of digestion, or immediately upon its termination, to say how much, if any, AQ is still contained in the pulping liquor.

(d) Consequently integers (d), (e) and (f) are not shown to have been satisfied by what happens at the Enstra mill.

Paragraphs (b) and (c) above are not in dispute. Thus the crucial issue relates to (a), which turns on the interpretation of the specification, more particularly claim 1 thereof. It is to this that I now turn.

The general principles of law relating to the interpretation of a patent specification have been fully enunciated in the leading cases on the subject and it is

not necessary to re-state them all in this judgment. I would, however, stress certain of them.

To begin with, as was stated by Lord Diplock in Catnic Components Ltd and Another v Hill & Smith Ltd

[1982] RPC 183 (HL), at 242 line 44 - 243 line 1 -

".... a patent specification is a unilateral statement by the patentee, in words of his own choosing, addressed to those likely to have a practical interest in the subject matter of his invention (i e 'skilled in the art'), by which he informs them what he claims to be the essential features of the new product or process for which the letters patent grant him a monopoly."

Consequently a patent specification must be construed with reference to the state of knowledge of those skilled in the art; and, according to English authority, the relevant state of knowledge is that obtaining at the time of the publication of the specification (see Nobel's Explosives Company, Limited, v Anderson (1894) 11 RPC 519 (CA), 523 lines 9-29; Marconi's Wireless Telegraph

Company Ltd v Mullard Radio Valve Company Ltd (1924) 41 RPC 323 (HL), 334 lines 40-2; the Catnic case, supra, at 243 lines 12-18; Terrell on the Law of Patents, 13 ed, p 77, para 4.35). I take this to be the time of filing of the application. This appears to be in accordance with our law. It is not necessary to decide whether, in the case of a convention application, the date of publication should be understood to be the priority date (cf Burrell, South African Patent Law and Practice, 2 ed, p 246, para 5.23).

Accordingly, in order to enable the Court to construe the specification properly it must be instructed by expert evidence as to the state of the art in the field to which the invention relates, as it was at the relevant date (Gentiruco AG v Firestone SA (Pty) Ltd 1972 (1) SA 589 (A), 614 E-F). In this way the Court is placed, as far as possible, in the position of the skilled addressee. In this connection, too, the Court

should bear in mind that the skilled addressee is someone who is expected to bring reasonable intelligence to bear upon the language of the specification and who, while not required to struggle unduly with it, is to make the best of it and not to adopt an attitude of studied obtuseness (see Holmes JA in Letraset Ltd v Helios Ltd 1972 (3) SA 245 (A), 251 A, quoting Colman J in the Court a quo).

In the Catnic case, supra, Lord Diplock also stated (at 243, lines 3 - 5):

"A patent specification should be given a purposive construction rather than a purely literal one derived from applying to it the kind of meticulous verbal analysis in which lawyers are too often tempted by their training to indulge."

This "purposive" approach to the interpretation of patents was further elaborated and explained by the Court of Appeal in England in the case of Codex Corporation v Racal-Milgo Ltd [1983] RPC 369 (CA), May LJ stating (at

381 line 52 - 382 line 3), with reference to the question of infringement:

"The question to be asked is one of construction, but of purposive or realistic construction through the eyes and with the learning of a person skilled in the art, rather than with the meticulous verbal analysis of the lawyer alone".

(See also Improver Corporation and Others v Remington Consumer Products Limited and Others [1990] FSR 181.)

The purposive approach has been approved and adopted by this Court (see Multotec Manufacturing (Pty) Ltd v Screenex Wire Weaving Manufacturers (Pty) Ltd 1983 (1) SA 709 (A), at 721 C - 722 D; Stauffer Chemical Co and Another v Safsan Marketing and Distribution Co (Pty) Ltd and Others 1987 (2) SA 331 (A), 343 A - 344 D).

In argument before us (as also in the Court of the Commissioner of Patents and in the Court a quo)

debate as to the interpretation of claim 1 revolved mainly around -

- (a) the meaning of the words "treating" (in integer (b)) and "treatment" (in integer (f)) and, more specifically, whether the treatment process was confined to the time at temperature or whether it included also time to temperature;
- (b) the meaning of the word "containing" (in integer (d)) and particularly whether claim 1 required a cyclic keto compound, one of the selected compounds (in this case AQ), to be present in that form and in the prescribed proportion in the alkaline pulping liquor throughout the process of treatment.

The Commissioner appears to have held in terms of claim 1: (a) that the "treatment" commences when the

contents of the reaction vessel reach the maximum temperature; (b) that consequently the time to temperature is not part of this treatment process; and (c) that the additive (in this regard I shall merely refer to AQ) must at least be present in the pulping liquor in the minimum required quantity at the commencement of the treatment. In reaching finding (c) above, the Commissioner rejected a submission made on behalf of Sappi that the pulping liquor should contain the required additive throughout the time at temperature phase for the following reasons:

".....since it is clear that it (i e the additive) does not retain its original form during this phase, but is speedily converted to semi-AQ and AHQ by means of the redox process. This will be known to persons skilled in the art and is also logical, since AQ as such is not soluble in the pulping liquor but must first be converted to AHQ before it can carry out its delignification function. All that is hence required is that the necessary quantity of AQ should be present at the commencement of the treatment, that is at

the time when the pulping liquor first reaches maximum temperature."

(For purposes of future reference I shall call this "the Commissioner's finding on the state of the art".) On the other hand, the Commissioner also rejected an argument advanced by C I L's counsel that AQ, or at any rate its derivative AHQ, would be present at maximum temperature, even if introduced at the inception of the heating up process. He did so on the basis that AHQ and semi-AQ were not cyclic keto compounds as envisaged by integers (d) and (e) of claim 1.

The Commissioner then compared the process at the Enstra mill with the integers of claim 1, so interpreted, and held (i) that at Enstra the treatment commenced once the liquor started circulating and being heated up and continued throughout the phase of time to temperature; and (ii) that the treatment continued

during the phase of time at temperature. He then concluded:

"Although it cannot be established how far the treatment has progressed by the time the maximum temperature is reached it is clear that a certain amount of delignification will already have taken place before the attainment of this temperature. Insofar as claim 1 of the patent does not make provision for the phase of time to temperature and for the treatment which is already taking place during this phase, it cannot, to my mind, be said that the defendant's Enstra process is infringing claim 1 of the patent in suit."

The judgment of the TPD, which was delivered by Harms J (Kirk-Cohen J and McArthur J concurring), emphasizes the purposive approach to patent interpretation and then proceeds to state what the man in the art (in this case someone whose qualifications include a degree in chemistry) would have known at the relevant date. This knowledge may be summarized in the following propositions:

- (1) That when the contents of the closed pressure vessel are heated and a high pressure builds up there are problems in introducing pulping liquor or additives or both.
- (2) That there would be even greater difficulties in removing additives purely in order to measure their quantities at operating temperatures.
- (3) That the pulping liquor begins to operate upon the chips when the liquor comes into contact with them.
- (4) That AQ is barely soluble in aqueous systems, including alkaline pulping liquor.
- (5) That AHQ and semi-AQ are highly soluble in hot pulping liquor.
- (6) That in order to react with the lignin the chemicals must be in solution because they must penetrate the chips to reach the lignin.

- (7) That AQ is susceptible to a redox reaction.

From this knowledge the Court drew the following conclusions:

- (a) "The addressee would be surprised if told that although examples in the specification were done by adding the additive to the pulping liquor at the beginning, the claims require that the addition must take place when the interior of the closed vessel has reached a high temperature and pressure."
- (b) "It follows that any reasonable reader of the claim would realise that, in order to 'treat' the wooden chips, the AQ had to change from AQ to AHQ and that a reference in the claims to AQ must be a reference to AQ in some other form eg the reduced form of AHQ."
- (c) "If one takes into account that AHQ cannot be measured, especially not in a closed vessel at pressure and temperature, it must follow that the pulping liquor must contain the AQ in the prescribed quantities when added to the wood. The AQ does 'treat' at these high temperatures but it treats via its reduced form."

The Court accordingly held that, as contended by C I L, claim 1 does not unduly alter the ordinary processes of pulping and merely requires the addition of the prescribed quantity of additive to the pulping liquor at the outset of the process and, then, the following of the procedures of heating up to a temperature of between 150°C to 200°C in a closed reaction vessel and of holding that maximum temperature for the specified time before discharging the material for further steps.

It was evidently common cause between the parties that if claim 1 were interpreted in this way, it followed that there had been infringement at the Enstra mill of not only claim 1 but also claims 3, 4, 5, 6, 9 and 11. And the TPD so held.

On appeal before us, Sappi's counsel strongly criticized both the findings of the Court *a quo* as to what the man in the art, the skilled addressee, would

have known as at the relevant date (either 1 September 1976 or 5 September 1975), and the conclusion as to the meaning of claim 1. It was argued that the Court had not properly distinguished evidence given as to the knowledge of the art at the time of trial and that given with reference to the state of the art at the relevant date. I shall deal with these criticisms with reference to the various propositions listed above.

As to propositions 1 and 2:

It is clear to me that at the relevant date the skilled addressee (who would be someone engaged at a high technical level in the pulping industry and would have a comprehensive knowledge of the relevant chemistry) would have known that a high pressure builds up in a digester while cooking is in progress and that inevitably there would be problems in then introducing pulping liquor or additives or in removing additives in order to measure

quantities. The evidence is that at a temperature of 170°C (an average maximum temperature) the pressure inside the digester is about 690 kilopascals, i e seven times atmospheric pressure. The problems referred to are thus virtually self-evident.

In arguing the contrary, Sappi's counsel pointed to, firstly, the fact that in some of the experiments included under the examples in the body of the specification the additive had been introduced during the cooking process and, secondly, the continuous digestion process in which, according to counsel, "pulping liquor and additives are added at temperature and pressure". These points do not impress me.

Dr Holton, C I L's only witness, was the inventor of the process which is the subject-matter of the patent and he conducted the tests or experiments referred to in the examples. In evidence (while under cross-examination by Sappi's counsel) he explained how in

certain instances special apparatus, consisting of a modified digester, was devised to enable an additive to be introduced at high temperatures. His evidence proceeds:

"Right. Now that of course is something which is not done in practice, is it? In mills?-- No this would be really quite absurd to carry out in a mill. It is a theoretical experiment just to confirm the time effects of anthraquinone, or the temperature effects of anthraquinone."

This evidence, encouraged as it was by counsel's question, stands uncontradicted and, in my opinion, it disposes of the suggestion that the skilled addressee would have considered the introduction of additives while the cooking was in progress in a batch digester to be a practical proposition under normal pulping conditions. And the same would apply to the removal of additives while cooking was in progress.

As regards the continuous digestion process, the references to this in the evidence are fragmentary

and give very little insight into how exactly the process operates. Dr Holton was asked in cross-examination about certain "mill trials" in which AQ was introduced into a continuous digester by being added as a "slurry in ... white liquor through a pump". There is no indication that this was a usual industrial practice or indeed what precisely it signifies. According to Rydholm, whose textbook on Pulping Processes was the main authority relied upon by Sappi's main expert witness, Dr Eggers, most digesters were then operated discontinuously (i e by the batch process). It would, in my opinion, be very strange if the skilled addressee should, therefore, think in terms of continuous digestion when considering the meaning of claim 1, and more particularly the question as to when the AQ should be added, especially if (as mostly would be the case) he was operating a batch digester.

Moreover, Dr Holton's evidence was that in practice the additive was introduced before the digester was closed and that the ordinary commercial mill would not be equipped to allow of such introduction after closure and after cooling had started. In addition, the skilled addressee would know that there were advantages in having the additive in the digester from the beginning in that it prevents the peeling reaction and increases the yield. Moreover, the necessity for getting the best possible penetration of the wood chips by the chemicals before reaching high temperatures had been long understood.

Proposition 3

This does not appear to be in dispute.

Propositions 4, 5 and 6

Sappi's counsel criticized these findings on

the ground that while they might represent the knowledge of the man in the art at the time of the trial, there was no evidence to establish that they reflected the state of knowledge as at the relevant date. I have carefully studied Dr Holton's evidence pertinent to these matters. He stated that the insolubility of AQ in aqueous systems was a well-known fact, to be found in "reference texts throughout the world"; and that the solubility of AHQ was also a well-known fact. Although Dr Holton did not say specifically that this was so at the relevant date there are cogent grounds for inferring that this was what he meant. For he went on to say -

"If I may add something, the important concept here is, or one of them is that a soluble component can react very well with another component but if it were insoluble and looking at wood of course as being insoluble, reactions between two solid materials then are much more difficult to effect, and this initial reaction between anthraquinone and wood was somewhat surprising because one would not predict as a chemist two solids reacting. And so in fact it was obvious that some kind of

soluble form had to be resulting which could then react. This is an inherent understanding that a chemist would have of this. So that the second component anthrahydroquinone was predicted, once anthraquinone worked one had to predict that anthrahydroquinone or something very similar had to have resulted."

Here clearly he speaks of the inherent understanding of the chemist when AQ was found to work so successfully. A little later and after the witness had been asked to deal with the state of knowledge as at 5 September 1975 the Court asked a question and Dr Holton replied as follows:

"COURT: Do I understand you properly that even though it was not quite certain exactly what was happening with this anthraquinone the important thing is that it was known that there was an oxidation reduction process and the only way in which the results which seem to have been obtained by use of this chemical could have been obtained would have been if there had been an oxidation reduction process in the course of which anthrahydroquinone would have been evolved?-- Essentially correct. We just say that what we understood is that at least one half of the cycle had to be

occurring initially when anthraquinone was added. We did not at that point in time understand that the second half of this cycle, the return to anthraquinone, necessarily occurred until we learned more about how little anthraquinone could be used and then a chemist can calculate that this reaction cannot be going one way, it has to be going the complete cycle and therefore acting as a catalyst."

So far as I am aware the evidence was not challenged in cross-examination. Nor did Dr Eggers dissent from it. It would seem to have formed the basis of the Commissioner's finding on the state of the art. In my view, propositions (4), (5) and (6) are well-founded.

Proposition 7

From the evidence quoted above it appears that at least that part of the redox reaction involving the conversion of AQ into AHQ would have been known.

Accepting that to have been the state of the art as at the relevant date, it seems to me that the

conclusions of the TPD which I have listed (a), (b) and (c) above are in the main also well-founded.

The essential feature of the invention is, in my view, the additive (for convenience I shall call it AQ) which was found, when applied to the conventional alkaline pulping processes (especially the soda process), to have the various beneficial results described in the body of the specification. Admittedly the limits as to the range of the maximum temperatures and as to the period of treatment tend beyond the conventional, but this was mainly to prevent pirating and does not materially detract from the conclusion that the essence of the invention is the additive.

It is true that claim 1 speaks of treating the cellulosic material in the closed reaction vessel with an alkaline pulping liquor containing AQ, but it seems to me that the skilled addressee, with the knowledge of the art ascribed to him above, would realise that this part of

the claim does not predicate that once AQ has been added to the alkaline pulping liquor it must remain in that pristine state throughout the treatment. He would know that this just does not happen: that in fact chemical reactions take place and the AQ is converted into AHQ. Interpreting the claim 1 purposively or realistically, I am of the opinion that "containing" should be interpreted as meaning "initially containing" or "to which has been added"; and in this regard I agree with the findings of the Commissioner and the Court *a quo* that this integer of the claim is satisfied if the alkaline pulping liquor contains the required quantity of AQ at the commencement of the treatment.

It is also true, as emphasized by Sappi's counsel, that in a reply to a request for further particulars C I L averred that when "treating" with an alkaline pulping liquor took place at the Enstra Mill, the liquor contained 0,001 to 10,0% by weight based on

the cellulosic material of a cyclic keto compound, as defined in the claims. It was common cause, however, that it cannot be proved that this was the position throughout the period of treatment; and that towards the end of the period it is unlikely to be the case. Moreover, this statement in the pleadings cannot affect the proper interpretation to be placed on claim 1.

This brings me to the other crucial question, viz as to when the treatment does commence. I have no doubt whatever that if the man in the art had been asked about this at the relevant time he would have replied without hesitation that the treatment, for example, in a batch digestion commences as soon as the vessel is closed up and the process of liquor circulation and heating up has started. He would have known that the chemical changes involved in the delignification process then start taking place and that the process becomes progressively more effective as the temperature increases

until eventually the maximum temperature is reached. The evidence further indicates that he would have known that while the bulk of the delignification takes place during time at temperature, a significant amount also takes place during time to temperature; and that a fairly long slow rise to maximum temperature is very beneficial because it allows for maximum penetration of the wood chips before the final cook starts.

It must be conceded that the period of treatment during time to temperature is not specifically referred to either in claim 1 or in the body of the specification; and that integer (f) speaks of "the treatment taking place at a maximum temperature in the range of" It is this that gives rise to the problems of interpretation in this case. However, looking at the specification and claim 1 through the eyes of the skilled workman, endowed with a knowledge of the art as at the relevant date (as set forth above), I am of

the opinion that the treatment should be taken to commence once the reaction vessel is closed and the process of bringing the cellulosic material into contact with the alkaline pulping liquor and heating up of the contents of the reaction vessel has started. The only alternative is to interpret the specification as meaning that the treatment only commences when time at temperature has been reached. To the skilled workman this would appear an absurdity. He would know that under the conventional pulping procedures the temperature does not suddenly jump to the maximum once the process has been started; and that in fact there is a fairly lengthy time to temperature (lasting 35 to 120 minutes) during which a significant and important part of the treatment process takes place. He would not read the process described in the specification as departing fundamentally from conventional pulping procedures. Consequently, he would not interpret the statement in

integer (f), and similar statements in the body of the specification, as excluding treatment during the time to temperature phase. On the other hand, he would appreciate that the treatment during the time at temperature constitutes the most important phase during which the bulk of the delignification takes place and would understand why the limits, or ranges, as to time and temperature were explicitly stated in regard to this phase.

While it must be conceded that on purely verbal analysis of claim 1 the treatment could be said to commence only when maximum temperature is reached, a more purposive or realistic approach, based upon the skilled addressee's knowledge of the art, leads, in my view, to the conclusion that in claim 1 the treatment there referred to includes, by implication if necessary, the time to temperature phase as well.

For these reasons I agree with the conclusions reached by the TPD on the questions of interpretation and infringement.

Material Misrepresentation

I turn now to the counterclaim for revocation on the ground of material misrepresentation. Since the patent in suit was granted on an application made before 1 January 1979 (the date of commencement of the Patents Act 57 of 1978), the grounds of revocation must be sought in sec 23(1), read with sec 43(1), of the repealed Patents Act 37 of 1952 ("the Act") - see sec 3(1)(a) of Act 57 of 1978. Sec 23(1) of the Act lists the possible grounds of opposition to the grant of a patent; and sec 43(1) provides that application for the revocation of a patent may be made upon one or more of the grounds upon which the grant thereof might have been opposed, but on no other grounds.

The grounds relevant in this matter are contained in sec 23(1) (i) and (k), which read as follows:

"(i) that the application contains a material misrepresentation;

.....

(k) in the case of a convention application, that the specification describes or claims an invention other than that for which protection has been applied for in the convention country and that such other invention either -

(i) forms the subject of an application for a patent in the Union which, if granted, would bear a date in the interval between the lodging of the application in the convention country and the date of the application in the Union; or

(ii) is not an invention as defined in this Act;..."

As I have indicated, the patent in suit was granted on a convention application. In its completed

application (on patent form no 1A) C I L stated that application for the protection of the invention had been made in Great Britain and cited four applications bearing consecutive numbers and all having the same date, viz 5 September 1975. (I shall refer to these as "the British applications".) C I L's application goes on to state that the British applications were the first application by it in a convention country in respect of "the relevant invention"; and to ask that a patent be granted to it for the invention in priority over other applicants and that such patent should have the official date of the first application in the convention country, viz 5 September 1975.

Sappi's case on material misrepresentation is based upon the averment that the British applications describe inventions different from the invention claimed in the patent in suit. Consequently, so it is said, C I L's application contains a material misrepresentation

in that the application for the protection of the invention was not made in Great Britain on 5 September 1975, as alleged; and, therefore, the claims of the patent in suit were not entitled to the priority date 5 September 1975, as alleged. As I shall later explain, the issue as to the correct priority date also has a direct bearing on the other ground of revocation, viz lack of novelty owing to the alleged prior publication of the Swedish Honshu patent.

The British applications were each accompanied by a provisional specification; in each case the inventor is stated to be Dr Holton; and in each case the invention relates to a process for the delignification of lignocellulosic material involving digestion with an additive. In the case of application no 36636/75 the process consists of digestion in a soda pulping liquor in the presence of a polycyclic aromatic oxy compound "such as, for example," naphthoquinone, anthraquinone, anthrone

or phenanthrenequinone. Application no 36637/75 relates to digestion in a soda pulping liquor in the presence of a sulphur-free derivative of a polycyclic aromatic oxy compound "such as, for example", the alkyl, alkoxy or carboxyl derivatives of naththoquinone, anthraquinone, anthrone or phenanthrenequinone, or the alkali metal salts of the aforesaid carboxyl derivatives. Application no 36638/75 describes a process using a kraft liquor and the additives described in application no 36636/75; while application no 36639/75 combines a kraft liquor with the additives described in application no 36637/75. The ranges as to temperature (160°C to 195°C), time at temperature (15 minutes to 240 minutes) and the proportion of the additive (0,01% to 10% by weight) are the same in each application. Dr Holton, in describing the applications, said -

"The inherent differences are that we split the invention, if you will, into four categories."

In my view, the four applications should be read together and as pertaining to a single invention comprising the combined elements of pulping liquor, additive and time and temperature ranges contained in all four.

Sappi founds its case of disconformity between the invention described in the British applications and that claimed in the patent in suit on differences between them in regard to the classes of additives and the ranges of additive proportion, of time at temperature and of maximum temperature.

As a first step in considering the issue of material misrepresentation I shall assume in Sappi's favour that these differences exist and are material. The question which then arises is what the legal consequences of such disconformity are, and more particularly whether it amounts to material misrepresentation.

The first point to note is that disconformity of this nature, in the case of a convention application, is specifically dealt with in sec 23(1)(k). This subsection is not happily worded, but reference to the Afrikaans text helps to clarify its meaning. Taking, by way of example, the application in the convention country to have been in Great Britain, the subsection provides that it shall be a ground of opposition or revocation, in the case of a convention application in South Africa, that the specification (of the South African patent) describes or claims an invention different from that for which application for protection was made in Great Britain and that "such other invention" (i e that described or claimed in the South African patent specification) -

- (i) forms the subject of an application for a patent in South Africa which, if granted, would bear a date in the interval between the lodging of the application in Great Britain and the

date of the South African application: in other words, which would, if granted, anticipate the convention patent applied for; or

(ii) is not an invention as defined in the Act.

It is thus apparent that under this subsection mere disconformity is not sufficient to constitute a ground of opposition or revocation: there must, in addition, be one or other of the requirements set forth in subparagraphs (i) and (ii).

It is argued by counsel for Sappi that, apart from sec. 23(1)(k), such a disconformity also leads inevitably to an incorrect representation in the application for the South African patent in that in making the application the applicant is required to state, in effect, that the invention for which protection has been sought in the convention country (in this case Great Britain) is the same as the invention described or claimed in the South African application; and that this

amounts to a material misrepresentation in terms of sec 23(1)(i). In this connection counsel referred to two decisions of this Court: Bendz Ltd and Another v South African Lead Works Ltd 1963 (3) SA 797 (A) and Letraset Ltd v Helios Ltd 1972 (3) SA 245 (A).

In the present case there is no suggestion that the requirements of subparagraph (i) of sec 23(1)(k) are satisfied and I shall, at this stage, proceed on the basis that the same applies to subparagraph (ii). Acceptance of the argument of Sappi's counsel would, therefore, mean that although the disconformity in question could not constitute a ground for opposition or revocation under sec 23(1)(k), it could constitute such a ground under sec 23(1)(i). I find it extremely improbable that the Legislature, having laid down specific additional (and alternative) requirements before disconformity as to invention could invalidate a convention application, could have intended that under

another provision in the same section such disconformity could invalidate without the existence of one or other of these additional requirements. This would amount to an anomalous and inexplicable inconsistency within the section. I am satisfied, however, that a proper construction of paragraphs (i) and (k) removes any such possible inconsistency. In my view, the Legislature intended in paragraph (k) to deal specifically and comprehensively with the case of disconformity as to invention in a convention application. It is true that, as emphasized by Sappi's counsel, such a disconformity could fall under the wide and general wording of paragraph (i), but, in my opinion, the Legislature did not intend this to be so. This conclusion is supported by the rule of construction generalia specialibus non derogant (cf Government of the Republic of South Africa and Another v Government of KwaZulu and Another 1983 (1) SA 164 (A), 200 H - 201 H; Mngomezulu and Others v

Soweto City Council 1989 (2) SA 331 (A), 341 A - H); and see generally Steyn Die Uitleg van Wette, 5 ed, pp 188 - 91 and authorities there cited).

It follows from the foregoing that a disconformity as to invention in the case of a convention application and the consequential misstatement in the application are not grounds for opposition or revocation under sec 23(1)(i). Moreover, I do not consider this ruling to be in conflict with what was decided in the Bendz and Letraset cases (supra).

In the Bendz case, which was an application for the amendment of a patent, the facts were that the appellant had applied for provisional specifications in a convention country, Great Britain, on, respectively, 22 January 1952, (no 1725/52) and 23 May 1952 (no 13069/52).

Thereafter, on 13 February 1953 appellant made application for a South African patent and in his application cited application no 13069/52 as the

application made in the convention country for the protection of the invention and stated that this was the first application made in the convention country in respect of the relevant invention. It transpired that of the fifteen claims contained in the South African patent specification only nine had been disclosed in application no 13069/52, while the remaining six had been disclosed in application no 1725/52. Section 95(1) of the Act requires a convention application to be made within twelve months of the date of the application for protection in the convention country, if the priority date of the latter application is to obtain. It was held that there were two misrepresentations in appellant's South African application: (i) application no 13069/52 was not the only application made in a convention country in respect of the invention for which application was being made in South Africa, and (ii) the first application made in respect of the invention was

not application no 13069/52 but application no 1725/52, which was dated more than 12 months prior to the date of the South African application. These misrepresentations were held to render the South African application subject to revocation under sec 23(1)(i). Accordingly, the Commissioner's refusal of the application for amendment was upheld.

In the Letraset case the appellant had applied for and obtained a South African patent, stating in its application form 1A that the first application for protection for the invention in a convention country was a certain British patent application no 22206/60 filed on 24 June 1960. In an action for infringement in which the respondent counterclaimed for revocation on the ground, inter alia, that the South African application had contained a material misrepresentation, it was alleged by the respondent that in fact the first application in a convention country in respect of the

relevant invention was a British application lodged on 21 January 1958. The Court held, however, that the invention of the South African patent had not been described in the 1958 British application and that consequently the attack upon the patent's validity on the ground of material representation failed.

Both these cases were basically concerned with the question as to whether the application in the convention country relied upon by the applicant for a convention patent in South Africa was in fact the first application in the convention country in respect of the relevant invention. In neither case would the provisions of sec 23(1)(k) have been applicable. Nor was sec 23(1)(k) referred to in the judgments. Accordingly, in my opinion, these cases are not decisive of the question as to whether a disconformity which relates to the invention and falls under the opening

words of sec 23(1)(k) - i e without reference to subparagraphs (i) and (ii) - can constitute the basis for a material representation under sec 23(1)(i).

For these reasons I hold that the disconformity (if any) between the invention described in the British applications in this case and that described and claimed in the patent in suit cannot be relied upon to establish a case of material misrepresentation under sec 23(1)(i). On this view of the law it is not necessary to consider whether there was in fact such a disconformity.

At the eleventh hour (i e at the end of his argument in reply) Sappi's counsel applied for an amendment of one of the grounds of revocation in order to provide the foundation for a contention that the patent in suit was invalidated by sec 23(1)(k)(ii). I shall deal with this application later in the judgment.

Lack of Novelty

This ground of revocation depends upon what the priority date (or effective date) of the patent in suit is. Sappi's case is that the patent in suit was anticipated by the Swedish Honshu patent. It was alleged by Sappi in its counterclaim that the Swedish Honshu patent was published in print on 9 April 1976. This was formally admitted by C I L in its plea to the counterclaim. This date of publication was earlier than the actual date upon which the application for the patent in suit was lodged, viz 1 September 1976, but was later than the priority date accorded the patent in suit by reason of the British applications, viz 5 September 1975.

At the commencement of the trial before the Commissioner it was formally admitted by counsel for C I L that in the event of 1 September 1976 being the effective date of the patent in suit claims 1, 3, 4, 5 and 6 (but not 9 and 11)

were anticipated by the Swedish Honshu patent and that this invalidated the patent in suit.

Sappi contended, upon the grounds already indicated, that there was a disconformity between the invention described in the British applications and that described and claimed in the patent in suit and that one of the consequences of such disconformity was that the patent in suit did not enjoy the priority date based upon the date when the British applications were lodged.

Convention applications are provided for by sec 95 of the Act. The relevant portion of sec 95(1), as amended, reads as follows:

"... any person who has applied for protection for an invention in a convention country shall be entitled to a patent for his invention under this Act in priority to other applicants, if application therefor is made within twelve months after the date of the first application for protection in the convention country, and the patent shall have the same date as the date of the application in the convention country, but the term of the patent shall run from the

date on which the complete specification is lodged at the patent office....."

Section 95(5) provides:

"In determining for the purposes of this Act whether an invention described or claimed in a Union specification is the same as that for which protection has been applied for in a convention country, regard shall be had to the disclosure contained in the whole of the documents put forward at the same time as and in support of the application in the convention country, being documents of which copies have been left at the patent office within such time and in such manner as may be prescribed."

It was in terms of sec 95 of the Act that the patent in suit was applied for and granted by the Registrar. Assuming that, as alleged by Sappi, there was in fact a disconformity as to invention between the patent in suit and the British applications and assuming that (as I have held) this does not provide a ground for the revocation of the patent under sec 23(1)(i) or (k), the question arises as to what effect this has upon the

priority date of the patent in suit. Counsel were not able to point to any provision in the Act which specifically deals with this situation. On behalf of Sappi it was submitted, however, that the definition of "effective date" in sec 1 of the Act had the effect of assigning to the patent in suit, as an effective date, the date on which the relevant application was lodged at the patent office, viz 1 September 1976.

This definition reads as follows:

" 'effective date' means, in relation to -

- (a) an application which has been ante-dated or post-dated, the date to which that application has been so ante-dated or post-dated;
- (b) an application under section ninety-five, the date on which the application in respect of the relevant invention was made in the convention country in question or is in terms of the laws of that country deemed to have been so made;

(c) any other application, the date on which the application was lodged at the patent office;"

This definition, far from substantiating counsel's submission, is, in my view, adverse to Sappi's case on this point. For it unequivocally provides, in paragraph (b), that in the case of an application under sec 95 the effective date is the date on which the application in respect of the relevant invention was made in the convention country in question. And as the definition of "new" shows, it is the effective date of the application for a patent in respect of an invention which is the point of time by which the novelty of that invention is determined.

Sappi's counsel argued that if there is disconformity as to invention paragraph (b) does not apply and that one, therefore, falls back on paragraph (c), which fixes the date of the lodging of the

application at the patent office as the effective date. But paragraph (c) deals expressly with "any other application" i.e other than an application falling under paragraph (a) - which is not relevant - or an application under sec 95, and I do not see how it can be applied to an application under sec 95, albeit a flawed application by reason of disconformity. In the circumstances one is driven to the conclusion that in such a case only paragraph (b) can in terms apply.

It may be that this reveals a lacuna in the Act. Counsel for C I L suggested various remedies which an interested party dissatisfied with a convention patent being on the register because of disconformity as to invention might pursue, but it is not necessary to follow this line of inquiry. For present purposes the only point is that such disconformity would not appear to affect the priority date accorded to a convention patent.

It is to be noted that under the Patents Act of 1978

this position is now specifically regulated and it is provided that where a claim is not "fairly based" on an application in a convention country the priority date of the claim shall be the date on which the application was lodged at the patent office (see sec 33 (5)).

For these reasons I am of the view that the effective date of the patent in suit is 5 September 1975 and that accordingly the ground of revocation based upon lack of novelty cannot succeed.

Sappi's Application to Amend

As I have indicated, Sappi's counsel moved (at the conclusion of his argument in reply) for an amendment of one of the grounds of revocation, the ground as amended to read as follows:

"The invention claimed in the patent was not new at the effective date of the patent; alternatively the specification claims an invention other than that for

which protection has been applied for in the Convention Country and is not an invention as defined in the Act in that it is not new."

(The proposed amendment consists of the addition of the words which I have underlined.)

In moving this amendment Sappi's counsel explained that Sappi wished to contend that, in the event of the Court holding that the alleged disconformity as to invention in this case does not constitute a material misrepresentation in terms of sec 23(1)(i), the patent in suit is nevertheless subject to revocation on the ground that the case fell within the terms of sec 23(1)(k)(ii). In this context Sappi's case was that the invention described or claimed in the patent in suit "is not an invention as defined in the Act" because it is not new, having been anticipated by the Swedish Honshu patent. Counsel contended that he was entitled to argue this

point without amendment, on the principles laid down in the well-known case of Shill v Milner 1937 AD 101; but in the event of the court holding the contrary he applied for the amendment.

C I L's counsel opposed the amendment and Sappi's right to raise the point. He evidently had had no prior notice of the amendment and said that he was unable to deal with the point. There was no suggestion that the matter be postponed to give C I L's counsel the opportunity to consider the point and prepare argument.

Although the amending words are tacked onto the ground based on lack of novelty, it is clear to me that what Sappi seeks to raise is an entirely new ground of revocation not previously raised in any shape or form, or indeed considered by the Commissioner or the Court a quo. It involves difficult questions concerning the meaning and effect of sec 23(1)(k)(ii). For instance, if one interprets this provision as meaning that one of the

grounds upon which an invention contained in a convention patent can be shown to be "not an invention as defined in this Act" is lack of novelty, it would seem that what is contemplated is an anticipatory use or publication between the date of the application in the convention country and the date of the South African patent. (An anticipation dating from before the date of the application in the convention country would naturally fall under sec 23 (1)(2).) But such an interpretation would seem to render subparagraph (i) redundant. Moreover, on the facts of this case, Sappi's argument may lead one back to the question as to what the effective date of the patent in suit is; in which event if it be correct, as I have held, that the effective date must be taken to be 5 September 1975, then there was no anticipation by the Swedish Honshu patent.

In my opinion, this is not the sort of case where the Shill v Milner principles ought to be applied

(cf. Horowitz v Brock and Others 1988 (2) SA 160 (A), 180 B - 181 B). Nor do I think that the amendment can be allowed without prejudicing the respondent. The application for the amendment is dismissed.

C I L's Application to Amend and Re-open

This application, filed before the hearing of the appeal and opposed by Sappi, aimed at the withdrawal of C I L's formal admission (in paragraph 6(a) of its plea to Sappi's counterclaim) that the Swedish Honshu patent was first printed and published on 9 April 1976 and the re-opening of the case to enable C I L to establish that in fact the Swedish Honshu patent was first printed and published on a date after 1 September 1976, the date on which the application for the patent in suit was lodged.

At the hearing before us C I L's counsel announced that his client abandoned this application and

tendered Sappi's costs in regard thereto, such costs to include the costs of two counsel.

I would accordingly order:

- (1) That the appeal be dismissed with costs including costs of two counsel;
- (2) That the respondent's application to amend paragraph 6(a) of its plea to appellant's counterclaim and for an order for the re-opening of the case for the taking of further evidence be dismissed with costs, such costs to include the costs of two counsel.

M M CORBETT

E M GROSSKOPF JA)
NESTADT JA)
VIVIER JA) CONCUR
NICHOLAS AJA)