85/86

IN THE SUPREME COURT OF SOUTH AFRICA
(APPELLATE DIVISION)

In the matter of:

STAUFFER CHEMICAL COMPANY ..... 1st appellant,

STAUFFER CHEMICAL (SOUTH AFRICA)
(PROPRIETARY) LIMITED ..... 2nd appellant,

versus

SAFSAN MARKETING AND DISTRIBUTION
COMPANY (PROPRIETARY) LIMITED ..... 1st respondent,

CHEMTRADE (PROPRIETARY) LIMITED ..... 2nd respondent

KEMPTON PRODUCE SUPPLY
(PROPRIETARY) LIMITED ..... 3rd respondent

CORAM: Corbett, Viljoen, Hefer, JJA, Galgut et Nicholas, AJJA.

DATE OF HEARING: 17 and 18 March 1986

DATE OF JUDGMENT 18 August 1986.

J U D G M E N T

CORBETT JA:

Before this Court are an appeal and a cross-

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appeal against a decision of NESTADT J, sitting as Commissioner in the Court of the Commissioner of Patents, leave to appeal and cross-appeal having been granted ("in so far as it may be necessary") by NESTADT J and the parties having lodged with the Commissioner notice in writing in terms of sec. 76(4) of the Patents Act 57 of 1978 consenting to the appeal being heard by this Court without any intermediate appeal.

The proceedings in the Court a quo took the form of an action instituted by first and second appellants as plaintiffs (originally there was a third plaintiff but at some stage it withdrew from the action) against the respondents as defendants, in which appellants, alleging that respondents were infringing first plaintiff's South African patent no 72/2519, claimed an interdict and ancillary relief. In defence to the claim the respondents denied the alleged infringement and alleged upon

various grounds that the patent was invalid. The alleged invalidity also formed the basis of a counter-claim by respondents for the revocation of the patent.

The Commissioner held that infringement had not been established by appellants and that respondents had failed to prove invalidity on any of the grounds relied upon by them. He accordingly dismissed both the claim and the counter-claim and made certain orders as to costs, to which I shall refer in more detail later. The appeal is directed against the dismissal of the claim and the cross-appeal against the dismissal of the counter-claim and against certain aspects of the costs order.

The facts of the matter and the basic chemistry involved in the case are fully and accurately set forth in the careful judgment of NESTADT J which has been reported in Burrell's Patent Law Reports (see 1983 BP 209). Accordingly, I shall confine my reference to the facts

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and the chemistry to those matters which are strictly pertinent to the reasoning of this judgment.

THE FACTS

First appellant, Stauffer Chemical Company, is a company incorporated in the United States of America, where it carries on business on a very large scale as a manufacturer and distributor of, inter alia, agricultural chemicals. It is the registered proprietor of patent no. 72/2519, a convention patent entitled "Herbicide Compositions", registered in South Africa on 4 May 1973, with 16 April 1971 as its priority date.

The invention described and defined in the specification of patent no 72/2519 consists of "herbicidal compositions" comprising "an active herbicidal compound" and an "antidote" therefor. Before explaining these terms and elaborating upon the invention, as described in the

specification, it is necessary to take a brief look at the prior art.

The invention is, in popular parlance, a chemical weed-killer. It was evolved for use in respect of agricultural crop plants, more especially maize, or "corn" as it is known in the United States of America. Weeds have always been the enemy of agricultural crops because they compete for the water and nutrients in the soil. One of the tasks of the agricultural farmer is, therefore, to eliminate weeds as far as possible from the land where his crops are growing. Earlier this was done in the United States by tillage between the crop rows. The introduction in about 1945 of synthetic fertilizers, containing nitrogen, greatly increased the fertility of the soil. This improved the potential for crop growth, but at the same time it increased the weed menace. This problem stimulated the discovery and development of chemical herbicides designed to eradicate weeds.

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There were three methods evolved for the application of herbicides: (i) post-emergent, ie where the application is to the growing plants; (ii) pre-emergent, ie application to the soil surface after the planting of the seeds, but before the plants have emerged; and (iii) pre-plant incorporation, ie the herbicide is incorporated into the soil prior to planting.

One of the first chemical herbicides to be introduced commercially (in about 1945) was a compound popularly known as "2,4-D". It was applied by the post-emergent method and was effective against broad-leaved weeds, but not against the grass species. The latter characteristic was both an advantage and a disadvantage. It was an advantage because it meant that 2,4-D did not harm grass-like crops, such as corn; it was a disadvantage in that the grass-like weeds, not being affected thereby and having less competition from weeds

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of the broad-leaved variety, multiplied rapidly. Another group of herbicides, similar in effect to 2,4-D, were the S-triazines.

In about 1955 first appellant invented the thiolcarbamate herbicides, which were very effective against grass-like weeds and controlled some broad-leaved varieties as well. The thiolcarbamates were only suitable for application by the pre-plant incorporation method. First appellant took out a South African patent, no 57/2419 (since expired), in respect of such herbicides. One of the embodiments of this invention was a compound generally known by the acronym "EPTC". This was very effective against grass-like weeds and was a commercially successful product. But it had the disadvantage that it also tended to damage grass-like crops, such as corn, by causing malformation or stunted growth.

This problem led to the invention of the

/ antidotes.....

antidotes (or "safeners"). The first of these, a compound which was commercially exploited under the name "Protecto", was applied as a coating to the seed of the crop before planting; but there were a number of problems (which need not be detailed) associated with this form of treatment. This led to the invention which is the subject-matter of the patent in suit. I turn now to the specification of that patent.

In the section headed "Background of the Invention" it is stated that among the many herbicidal compounds commercially available the thiolcarbamates, either alone or admixed with other herbicides such as the triazines, have reached a "relatively high degree of commercial success". Here reference is made, by way of example, to compounds described in certain named United States patents. The section also adverts to the toxicity of these herbicides to weed pests and to the concomitant problem of injury to

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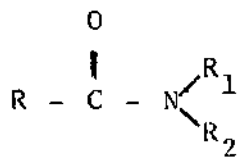
the crop plant. The specification then proceeds to describe the invention in the following terms:

> "It has been discovered that plants can be protected against injury by the thiolcarbamates alone or mixed with other compounds and/or the tolerance of the plants can be substantially increased to the active compounds of the above-noted U.S. Patents by adding to the soil an antidote compound corresponding to the following formula:



> wherein R can be selected from the group consisting of ..... (and then follow the names of fifty or more radicals or groups of radicals) .....; R_1 and R_2 can be the same or different and can be selected from the group consisting of ..... (and then follow sixty or more radicals or groups of radicals) ..... provided that when R_1 is hydrogen R_2 is other than hydrogen and halophenyl".

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The specification then describes how the compounds represented by this formula can be synthesized and gives 42 examples of the antidote, with detailed instructions as to how each of these is to be prepared. Then follows a table of compounds (Table I) "representative of those embodied by the present invention". Table I lists 513 compounds (numbered from 1 to 513), all of which conform to the basic antidote formula quoted above. These compounds are referred to elsewhere in the specification by the numbers assigned to them respectively in Table I.

Thereafter the specification describes how "compositions of this invention", ie herbicide and antidote, were tested. The first test was a soil incorporation test. Trays ("flats") of soil were treated with varying solutions of herbicide and antidote and seeds were planted in the soil. The trays were then kept under greenhouse conditions and the plants watered appropriately. The crop

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tolerance (indicated by the degree of malformation or stunting) at three weeks, four weeks and six weeks after planting was then rated. The results of this test are contained in Table II of the specification. Certain control tests were also done, ie the application of the herbicide without antidote and the results thereof are included in Table II. The second test consisted of a corn seed treatment. The soil in trays was treated with herbicide. Seeds treated with antidotal protectant and untreated seeds were then planted in alternate rows. The trays were then kept under greenhouse conditions, with appropriate watering, and the resultant injury (if any) to the plants at two weeks after planting and four weeks after planting was assessed. The results of this test, or series of tests, are contained in Table III of the specification.

The specification then continues to describe

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the invention and how it is to be performed and its preferred embodiments. Thereafter follow 44 claims. At this stage only claim 1 need be referred to. It conforms largely to the description of the invention quoted above. I quote the relevant portion:

> "1. A herbicidal composition comprising an active herbicidal compound and an antidote therefor corresponding to the formula:....."
> (and then follow the formula quoted above and the same lists of radicals from which R, R_1 and R_2 "can be selected".)

As appears from the specification and the expert evidence, the novelty of the invention described in this specification resides in the composition of the antidote. This is defined by the organic chemical formula quoted above. The formula consists of a nucleus or core, which falls under the amide functional group, repre-

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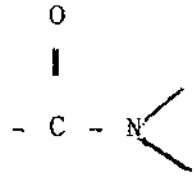

and three radicals represented by the symbols R, R_1 and R_2. This core comprises a carbon atom linked by a double bond to an oxygen atom and by a single bond to a nitrogen atom. The carbon atom has one free valency by which it may be linked to the R radical; and the nitrogen atom has two free valencies available for linkage with the R_1 and R_2 radicals.

A "radical" may be defined as a group of atoms bonded to one another, which group has an available or free bond or valency through which it bonds or links to other groups, such as functional groups. A functional organic chemical group was defined in evidence to be a group of atoms (including the carbon atom) which are bonded to one another and have the common characteristics of that group.

A functional group is always bonded to other organic chemical groups or radicals.

/ Embodiments.....

Embodiments of the antidote described in the specification must naturally all contain the amide core (this is an invariable component) and the R, R_1 and R_2 radicals. Because of the large number of alternative radicals and groups of radicals listed in claim 1 and the various permutations and combinations which the formula permits, potentially the invention covers an enormous number of compounds. In evidence a figure of 300,000 was mentioned, but if account be taken of the various alternatives under the groups of radicals mentioned the possibilities may well run into millions.

One of the antidotes falling within the scope of the invention which figures prominently in the tests described in the specification (the results of which are recorded in Tables II and III) is the compound listed no. 6 in Table I. Compound 6 was shown by the tests to be an effective antidote and probably the most succes-

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of all the embodiments tested by the inventors. A composition consisting of EPTC as the herbicidal component and compound 6 as the antidote was marketed by first appellant under the commercial name "EPTAM SUPER" with considerable success, both in the United States of America and in South Africa.

At all material times second appellant, a subsidiary of a Dutch subsidiary company of first appellant, has been first appellant's licensed manufacturer and distributor in South Africa of herbicidal compositions covered by patent no 72/2519.

The alleged infringement relates to the marketing and distribution in South Africa of a herbicidal product under the commercial name "GENEP PLUS". It is not disputed that the three respondents, in various capacities, have been responsible since about August 1982 for the marketing of GENEP PLUS in South Africa. It appears

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too that the antidote component of GENEP PLUS is supplied to first respondent by an American company, PPG Industries Incorporated, of Pittsburgh, Pensylvania ("PPG"). PPG carries on business on a large scale in competition with first appellant. A research chemist employed by PPG, Dr J K Rinehart, first synthesized the antidote of GENEP PLUS in August 1979. In 1981 PPG was granted a United States patent covering this antidotal compound and in the following year a similar patent was granted in South Africa. There are proceedings pending for the revocation of the South African patent (initiated by first appellant) and for the revocation of patent no 72/2519 (initiated by PPG). These applications are awaiting the outcome of the present litigation. As the Commissioner rightly remarked (see reported judgment at p 214D) —

> "In reality it is these two companies (ie first appellant and PPG) who are protagonists in this litigation".

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I turn now to the various issues in the appeal.

THE ALLEGED INFRINGEMENT

The sole issue in regard to infringement is whether GENEP PLUS falls within the scope of what is claimed by patent no. 72/2519. In considering this issue I shall concentrate on claim 1 for appellant's counsel conceded that if he failed to establish infringement of claim 1 he could not succeed in respect of any of the other claims alleged to have been infringed. Infringement falls to be considered in terms of the provisions of the Patents Act 57 of 1978.

The integers of claim 1 may be stated as follows:

(1) A herbicidal composition comprising

(2) an active herbicidal compound and

(3) an antidote therefor corresponding to the formula consisting of —

(a) a central amide core or nucleus,

(b) an R selected from the list of radicals

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prescribed therefor in the claim,

(c) an R_1 selected from the list of radicals prescribed therefor in the claim, and

(d) an R_2 selected from the list of radicals prescribed therefor in the claim.

(Because they are not relevant here, I have omitted the directions in the claim that R_1 and R_2 can be the same or different; and that when R_1 is hydrogen R_2 must be other than hydrogen and halophenyl.)

I shall deal in more detail with the meanings to be attributed in claim 1 to the terms "herbicidal composition" and "active herbicidal compound" when I come to consider certain grounds of alleged invalidity. Suffice it to say at this stage (when validity is assumed) that it is not disputed that in terms of claim 1 GENEP PLUS is a herbicidal composition and that it contains an active herbicidal compound, viz EPTC. Integers (1) and (2) are therefore present. It is also common cause that

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GENEP PLUS contains an antidote the chemical formula whereof does comprise (a) a central amide core, (b) an R which falls under one of the listed radicals, viz haloalkyl, and (c) an R_1 which falls under one of the listed radicals, viz alkenyl. Integers 3(a), (b) and (c) are thus also present. The infringement issue consequently turns on the R_2 radical of the antidote, ie on integer 3(d).

In their further particulars for trial the respondents stated that the chemical name for the R_2 radical of the antidote of GENEP PLUS was "1,3-dioxolan-2-yl-methyl". It was conceded by Prof Baldwin, an expert witness called on behalf of the appellants, that this was a "perfectly legitimate name" and that basically the radical consisted of a dioxolan cyclic structure bonded to a methyl unit. No such radical for the R_2 position is named in claim 1.

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Essentially, the appellants' main case, to begin with, was that there were different ways of naming chemical structures and that the R_2 radical of the antidote of GENEP PLUS could also be classified under the names "alkoxyalkyl" or, alternatively, "dialkoxyalkyl". "Alkoxyalkyl" is specifically listed in claim 1 amongst the radicals from which the R_2 radical may be selected; and, so it was contended, the name "alkoxyalkyl" must be read to include "dialkoxyalkyl".

A considerable portion of the expert evidence led by the appellants was directed towards the substantiation of these propositions. And in this connection stress was laid on the difficulties of nomenclature in this field and the possibility of an organic compound or radical being named in several different ways, depending, inter alia, upon which part or feature thereof was being accentuated. (See, too, in this regard the judgment a quo at pp 226C - 228B.)

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In the end, however, the appellants did not pursue this line of argument. Certain of their key witnesses do not appear to have fared too well under cross-examination when attempting to establish these propositions; and the cross-examination of Prof Rees, respondents' main witness on the classification and naming of compounds, especially the R_2 radical of the GENEP PLUS antidote (or "PPG R_2", as it was sometimes called in the Court a quo), seems to indicate that appellants had by that stage given up the idea of pressing the contention that this R_2 radical was classifiable as either an alkoxyalkyl or a dialkoxyalkyl. It seems, too, that by the argument stage in the Court a quo appellants' counsel had accepted —

> "..... that, on a literal interpretation, whatever system of nomenclature was applied, the PPG R_2 was neither an alkoxyalkyl nor a dialkoxyalkyl".

(See the reported judgment, at p 233B.) The attitude of appellants' counsel on appeal before us was the same.

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Moreover, at no stage was it suggested that claim 1 contained any other named radical for the R_2 which would comprehend the R_2 radical of the GENEP PLUS antidote.

This compelled appellants to fall back on an alternative line of argument. In broad outline it ran as follows:

(1) A person infringes a patent when he takes the "substance" or "pith and marrow" of the invention.

(2) In the case of a chemical patent this may occur where the infringer substitutes a chemical equivalent or trivial variant for some constituent of the invention.

(3) In the present case the R_2 of the GENEP PLUS antidote was such a chemical equivalent or trivial variant with the result that the compo-

sition, taken as a whole, infringed claim 1 of patent no. 72/2519.

In elaboration of point (3) above appellants made particular reference to a composition called the "Stauffer Test Composition" ("the STC"). The STC consists of EPTC and an antidote. The antidote component of the STC was first synthesized by Dr Rinehart on 20 March 1979. Earlier that year PPG had decided to enter the thiolcarbomate herbicide market. In order to do so it needed an effective safener and Rinehart was instructed to conduct a "crash" research programme to find such a safener. An initial series of tests produced a "lead compound", which formed the basis of a testing programme commencing in the middle of March 1979. The antidote of the STC was one of the first compounds synthesized in the course of this programme and the antidote of GENEP PLUS one of the last. In the period end of 1981/ beginning of 1982 Mr L L Green, a research biologist in the

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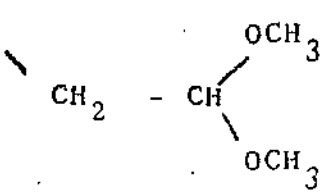
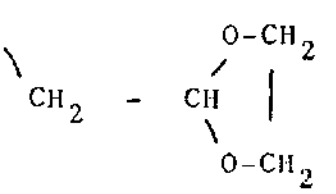
employ of first appellant, conducted a series of evaluation tests designed to compare the overall performance of, inter alia, the STC and GENEP PLUS. He concluded that the overall performance of these two compounds in this evaluation was "very similar". They both proved to have excellent antidotal qualities.

The chemical compositions of the STC and GENEP PLUS are similar. Each consists of a mixture of EPTC and an antidote. The antidote in each case consists of the amide nucleus and they have identical R and R_1 radicals. The R_2 radicals differ, but have certain features in common. I reproduce the R_2 portions of their respective formulae thus:

STC R_2



GENEP PLUS R_2



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The STC R_2 was described in evidence as a dialkoxyalkyl with an acyclic acetal function; and the R_2 of GENEP PLUS as a dioxolan with a cyclic acetal function. The cyclic and acyclic structures of the respective R_2 radicals of GENEP PLUS and the STC appear from the above extracts from their chemical formulae. (See in this regard the judgment a quo at pp 232 A - C, 245 A - F.)

In argument appellants used the comparison between the STC and GENEP PLUS in this way:

(a) The antidote of the STC comprises an amide nucleus and R and R_1 radicals falling within claim 1.

(b) The R_2 radical of the antidote of the STC is to be classified as a dialkoxyalkyl and also as an acyclic acetal.

(c) Claim 1 includes amongst the radicals from which the R_2 may be selected "alkoxyalkyl".

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(d) In the context of claim 1 "alkoxyalkyl" must be interpreted to include mono-alkoxyalkyls and dialkoxyalkyls.

(e) Consequently the STC antidote represents an embodiment of the invention claimed in claim 1.

(f) Apart from the R_2 radicals, the antidotes of the STC and GENEP PLUS are identical.

(g) The R_2 radical of the antidote of GENEP PLUS may be classified as a cyclic acetal.

(h) The difference between the R_2 radical of the STC antidote, an acyclic acetal, and that of the GENEP PLUS antidote, a cyclic acetal, is trivial.

(i) Consequently GENEP PLUS constitutes an infringement of claim 1.

Propositions (a), (b), (c), (f) and (g) of this argument are not in dispute. The others are very much

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in issue. In regard to (d) the arguments and counter-arguments and the relevant evidence are fully discussed in the judgment of NESTADT J (see reported judgment pp 238 E - 244 G). The learned Commissioner held that there was merit in the argument of respondents' (in the Court below defendants') counsel, but found it unnecessary to decide the issue and proceeded on the assumption, in appellants' favour, that claim 1 included dialkoxyalkyls. He also assumed that claim 1 included dialkoxyalkyls having an acyclic acetal function (see reported judgment p 244 E). The whole issue was fully re-argued on appeal. I am inclined to share the Commissioner's evident preference for respondents' argument on this issue, but, like him, I do not find it necessary to decide the point. I shall proceed to consider appellants' argument on the same assumptions as those made by the Commissioner.

At the outset I would point out that the comparison

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between the STC and GENEP PLUS, which is central to appellants' argument, is a misconceived approach. Apart from the fact that the STC was not even a described embodiment of the invention (in truth, as I have indicated, it is a matter of dispute as to whether it is an embodiment at all), the correct comparison in law is between claim 1, properly construed, and GENEP PLUS. For the determination of the question as to whether or not the plaintiff has proved an infringement of his patent turns upon a comparison between the article or process, or both, involved in the alleged infringement and the words of the claims in the patent (see Letraset Ltd v Helios Ltd 1972 (3) SA 245 (A), at pp 274 H and 277 D; Moroney v West Rand Engineering Works 1977 BP 452, at p 460; Rodi & Wienenberger A G v Henry Showell Ltd [1969] RPC 367 (HL), at p 391). I proceed, however, to consider appellant's general submission, viz. that claim 1 includes amongst the radicals from which the R_2 may be selected dialkoxyalkyls having an acyclic acetal function

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(which proposition I have assumed to be correct), that the R_2 radical of the antidote of GENEP PLUS constitutes a chemical equivalent or trivial variant of an R_2 radical consisting of such a dialkoxyalkyl, and that, therefore, GENEP PLUS infringes claim 1. This brings me to the general topic of chemical equivalence.

There have been a number of judgments of this Court dealing with the situation where an alleged infringer has taken, say, all but one of the features of the invention as claimed by the patentee and, as regards that one feature, has either omitted it or substituted an equivalent; and the question has arisen as to whether he should be adjudged to have infringed the patent in that he has appropriated the substance or pith and marrow of the invention (see eg. Frank and Hirsch (Pty) Ltd v Rodi & Wienenberger Aktiengesellschaft 1960 (3) SA 747 (A); Letraset Ltd v Helios Ltd 1972 (3) SA 245 (A);

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Multotec Manufacturing (Pty) Ltd v Screenex Wire Weaving Manufacturers (Pty) Ltd 1983 (1) SA 709 (A); cf. Selas Corporation of America v Electric Furnace Co 1983 (1) SA 1043 (A)). The answer to this question depends basically on whether the features of the claimed invention taken by the alleged infringer represent all the essential integers of the claim and the feature omitted or substituted by an equivalent is an unessential integer. If so, then the alleged infringer may have infringed, depending on the nature of the so-called equivalent. If, on the other hand, the feature omitted or substituted is an essential integer, then no infringement has been committed.

In the Multotec case (supra) reference was made (at p 722 A-D) in this regard to a decision of the House of Lords, Catnic Components Limited and Another v Hill & Smith Limited [1982] RPC 183. This decision was also much relied upon by counsel

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in argument before us in the present case. The Catnic case concerned the alleged infringement of a patent for galvanised steel lintels used in building construction. The invention consisted of a box-girder structure, in which one of the components was a rigid support member described in the relevant claim as "extending vertically". The lintel could be made in two different modules. The defendant manufactured and marketed galvanised steel lintels (also in two modules) which were identical to the lintel described in the claim in all respects save that the corresponding rigid support member in each module was not precisely vertical, but inclined slightly — 6° from the vertical in the case of one module and 8° from the vertical in the case of the other module. The question to be decided was whether this deviation from exact geometric verticality saved defendant's product from infringing the patent. The House of Lords, reversing a majority decision of the Court of Appeal and re-

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storing the judgment of the trial Judge, held that it did not. The speech of Lord DIPLOCK, which was concurred in by the other members of the Court, contains the following passage (at p 242, line 44, to p 243, line 24):

> "My Lords, 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. It is those novel features only that he claims to be essential that constitute the so-called 'pith and marrow' of the claim. 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. The question in each case is: whether persons with practical knowledge and experience of the kind of work in which the invention was intended to be used, would understand that strict compliance with a particular descriptive word or phrase appearing in a claim was intended by the patentee to be an essential requirement of the invention so that <u>any</u> variant

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would fall outside the monopoly claimed, even though it could have no material effect upon the way the invention worked.

The question, of course, does not arise where the variant would in fact have a material effect upon the way the invention worked. Nor does it arise unless at the date of publication of the specification it would be obvious to the informed reader that this was so. Where it is not obvious, in the light of then-existing knowledge, the reader is entitled to assume that the patentee thought at the time of the specification that he had good reason for limiting his monopoly so strictly and had intended to do so, even though subsequent work by him or others in the field of the invention might show the limitation to have been unnecessary. It is to be answered in the negative only when it would be apparent to any reader skilled in the art that a particular descriptive word or phrase used in a claim cannot have been intended by a patentee, who was also skilled in the art, to exclude minor variants which, to the knowledge of both him and the readers to whom the patent was addressed, could have no material effect upon the way in which the invention worked."

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The approach of giving a specification a "purposive construction" was followed in the Multotec case (supra, at p 722 A-D; and see also the Selas Corporation case, supra, at p 1052 H - 1053 G). There has been some comment on Lord DIPLOCK's use of the epithet "purposive" in this context (see eg B C Reid in 1985 CIPA 254.7); and in Codex Corporation v Racal-Milgo Limited [1983] RPC 369, at p 382, it was equated to "realistic". In this latter case MAY LJ, delivering the judgment of the Court of Appeal and, having quoted the general exposition given in the Catnic case which I have set out above, proceeded to state (at p 381, line 41, to page 382, line 6) —

> "First, therefore, we must construe the specification and claims in the present case purposively, through the eyes and minds of those skilled in the art at the material time, and not by applying to them an over-meticulous verbal analysis. Having done

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this, we must then decide whether there has been an infringement of them, approaching and answering this question with the guidance given by Lord Diplock in those parts of his speech in the Catnic case which I have quoted. We do not think that the decision in this recent case has had the far-reaching effect that Mr. Blanco White feared, or that for which Mr. Aldous, in the alternative, contended. For instance, there is no suggestion in Lord Diplock's speech that one should look only to the essence or principle of a patent in suit and hold there to have been an infringement merely because that essence or principle has been made use of by the alleged infringer. There may have been, or there may not. 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.

Approaching the claims of the patent in suit in this way we think that the essential and novel features in the claims, particularly claim 1, as they would appear to the reader skilled in the art, are those of....."

In Burrell, South African Patent Law and Practice, 2nd ed. (1986), at p 251 it is stated:

"It has, however, been pointed out, with respect correctly, that the South African

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> approach to purposive construction is based on a misunderstanding. The 'doctrine' of pith and marrow has always been expressed in terms of the essentiality of a feature of an invention. As against that and fundamental to the rule of purposive construction, is the dispensing with of the need to distinguish between essential and unessential integers of a claim as a step preparatory to the application, or non-application of the 'doctrine' of pith and marrow".

With respect, it seems to me that this incorrectly reflects the effect of the Catnic case. I do not read Lord DIPLOCK'S judgment as laying down that the need to distinguish between essential and unessential integers is dispensed with.

Two further English judgments may be referred to with profit. In Marconi v British Radio Telegraph and Telephone Company Ld [1911] 28 RPC 181 PARKER J said (at p 217):

> "It is a well-known rule of Patent Law that no one who borrows the substance of a patented invention can escape the consequences of infringement by making immaterial variations. From this point

/ of.....

> of view, the question is whether the infringing apparatus is substantially the same as the apparatus said to have been infringed ....(W)here the Patent is for a combination of parts or a process, and the combination or process, besides being itself new, produces new and useful results; everyone who produces the same results by using the essential parts of the combination or process is an infringer, even though he has, in fact altered the combination or process by omitting some unessential part or step and substituting another part or step, which is, in fact, equivalent to the part or step he has omitted."

(Quoted with approval in RCA Photophone Ld v Gaumont-British Picture Corporation Ld and British Acoustic Films Ltd [1936] 53 RPC 167, at p 197, and Birmingham Sound Reproducers Ld v Collaro Ld [1956] RPC 232, at p 243.)

And in C. Van der Lely NV v Bamfords Ltd [1963] RPC 61

Lord REID said (at p 76):

/ ".... you.....

> ".... you cannot avoid infringement by substituting an obvious equivalent for an unessential integer".

(See also Halsbury, 4 ed, vol. 35, para. 579.)

The patent law of the United States of America also recognizes that a patent may be infringed even though the infringing article does not fall literally within the claim. In the leading case of Graver Tank & Manufacturing Co. Inc. et al v Linde Air Products Co, 339 US 605, Mr Justice JACKSON, delivering the majority opinion of the US Supreme Court, stated at pp 607-9:

/ "In determining.....

"In determining whether an accused device or composition infringes a valid patent, resort must be had in the first instance to the words of the claim. If accused matter falls clearly within the claim, infringement is made out and that is the end of it.

But courts have also recognized that to permit imitation of a patented invention which does not copy every literal detail would be to convert the protection of the patent grant into a hollow and useless thing. Such a limitation would leave room for - indeed encourage - the unscrupulous copyist to make unimportant and insubstantial changes and substitutions in the patent which, though adding nothing, would be enough to take the copied matter outside the claim, and hence outside the reach of law. One who seeks to pirate an invention, like one who seeks to pirate a copyrighted book or play, may be expected to introduce minor variations to conceal and shelter the piracy. Outright and forthright duplication is a dull and very rare type of infringement. To prohibit no other would place the inventor at the mercy of verbalism and would be subordinating substance to form. It would deprive him of the benefit of his invention and would foster concealment rather than disclosure of inventions, which is one of the primary purposes of the patent system.

The doctrine of equivalents evolved in response to this experience. The essence of the doctrine is that one may not practice a fraud on a patent. .....

/ The.....

The theory on which it is founded is that 'if two devices do the same work in substantially the same way, and accomplish substantially the same result, they are the same, even though they differ in name, form, or shape'..... In its early development, the doctrine was usually applied in cases involving devices where there is equivalence in mechanical components. Subsequently, however, the same principles were alsó applied to compositions, where there was equivalence between chemical ingredients. Today the doctrine is applied to mechanical or chemical equivalents in compositions or devices.....

What constitutes equivalency must be determined against the context of the patent, the prior art, and the particular circumstances of the case. ..... Consideration must be given to the purpose for which an ingredient is used in a patent, the qualities it has when combined with the other ingredients, and the function which it is intended to perform. An important factor is whether persons reasonably skilled in the art would have known of the interchangeability of an ingredient not contained in the patent with one that was.

A finding of equivalence is a determination of fact. Proof can be made in any form: through testimony of experts or others versed in the technology; by documents, including texts and treatises; and, of course, by the disclosures of the prior art."

(See also in this regard Deller's Walker on Patents, 2nd ed,

/ vol 7, ...

vol 7, §§ 536, 537, 546, 548, 571, 572; Ziegler v Phillips Petroleum Company 483 F. 2d 858 (1973) at pp 868-9; Sarkisian v Winn-Proof Corp. 686 F. 2d 671 (1981), at pp 684-5). According to Ziegler's case (at p 686), in order to establish equivalency for the purpose of showing infringement of a patent claim, the patentee has the burden of proving a real identity of means, operation and result. (Cf. the test posed in the English cases of RCA Photophone Ld v Gaumont British Picture Corporation Ld and British Acoustic Films Ld, supra, at p 189, lines 31-5; Birmingham Sound Reproducers Ld v Collaro Ld, supra, at p 245, lines 29-31; and see also Blanco White, Patents for Inventions, 5th ed., p 43.)

There may be certain differences in the approach of the English and American courts in this realm of patent law. For instance, in Hughes Aircraft Co v United States 717 F. 2d 1351 (1983) at p 1361, it was stated that the doctrine of equivalents was "judicially devised to do

/ equity".....

equity" (see also Ziegler's case, supra, at p 869), whereas in England the emphasis is rather on the proper interpretation of the patent claim. Furthermore, in Atlas Powder Company v E.I. Du Point De Nemours & Company 750 F 2d 1569 (1984) it was stated that:

> "It is not a requirement of equivalence, however, that those skilled in the art know of the equivalence when the patent application is filed or the patent issues. That question is determined as of the time infringement takes place" (p 1581).

This may be contrasted with what was said by Lord DIPLOCK in the above-quoted extracts from the Catnic case and with the following extract from the judgment of PEARSON J in the early English case of Badische Anilin und Soda Fabrik v Levinstein (1883) 24 Ch D 156, at pp 170-1:

> "..... in these chemical cases where a patentee has made some discovery in chemistry, any person may afterwards use for the same purpose chemical equivalents which were not known to be chemical equivalents at the time the patent was taken out. That is so expressed in the judgment of Mr Justice Williams in the case of Unwin v Heath, in which he says, 'There is ample evidence

/ that.....

that to melt together oxide of manganese and carbonaceous matter, with steel and iron, will serve as an equivalent for the melting together of carburet of manganese with steel or iron in producing the desired result. But there is no evidence that at the time of the patent and specification this was known to persons of ordinary skill in chemistry. And I fully agree with the doctrine which has been repeatedly laid down in the course of the discussion of this cause, that though the use of a chemical or mechanical substitute which is a known equivalent to the thing pointed out by the specification and claimed as the invention, amounts to an infringement of the patent; yet if the equivalent were not known to be so at the time of the patent and specification, the use of it is no infringement.' And Mr Baron Parke says this, 'The specification must be read as persons acquainted with the subject would read it at the time it was made, and if it could be construed as containing any chemical equivalents it must be such as are known to such persons at that time; but those which are not known at the time as equivalents, and afterwards are found to answer the same purpose, are not included in the specification. They are new inventions.' "

(The judgment of PEARSON J on the issue of infringement was concurred in by the Court of Appeal, see (1885) 29

/ Ch D 366.....

Ch D 366 at pp 399, 416, and the House of Lords, see (1887) 12 Appeal Cases 710, at p 726; see also Blanco White, op. cit., p 45, n 26.) American law, too, embraces concepts such as "pioneer patents" and "file-wrapper estoppel", which are foreign to English law and our law. Nevertheless, the fundamental idea that a person should not be entitled to pirate an invention by substituting an equivalent for an unessential feature of the claimed invention underlies all three systems. And here I would again stress that it is only in respect of the unessential features or integers of a claim that the doctrine of infringement by the substitution of equivalents can apply. If the feature or integer for which an equivalent has been substituted is an essential part of the claimed invention, then there is no room for the doctrine of equivalents (see Marconi v British Radio Telegraph and Telephone Company Ld [1911] 28 RPC 181, at p 217, line 46 - p 218, line 2; the RCA Photophone case, supra,

/ at.....

at p 197; the Birmingham Sound case, supra, at p 243; the Rodi & Wienenberger case, supra, at p 384, lines 18-21; the Catnic case, supra, per BUCKLEY LJ in CA at p 225, lines 31-8).

To ascertain what are and what are not the essential features or integers of a claimed invention the specification must be read and interpreted purposively or realistically, with the understanding of persons with practical knowledge and experience of the kind of work in which the invention was intended to be used and in the light of what was generally known by such persons at the date of the patent (see the Frank and Hirsch case, supra, at pp 762-3; the Marconi case, supra, at pp 217-8; the Catnic case, supra, at p 243), which date by our law is the priority date of the claim (see Burrell, op. cit., para. 5.23, p 246). Obviously, the fact that a claim incorporates a particular feature does not alone suffice

/ to.....

to make that feature an essential one. Otherwise the problem would not arise. In general, if the feature is in fact essential to the working of the claimed invention, then it must be regarded as an essential feature. On the other hand, a patentee may indicate in his specification, either expressly or by implication, that he regards a particular integer as essential; and in that event it must be treated as essential and it matters not that it may not be essential to the working of the invention. Where, however, a feature is not essential to the working of the invention and the patentee has not indicated that he regards it as an essential integer, then in general it may be treated as unessential and an alleged infringer may be held to have infringed the claim notwithstanding that his product or process does not incorporate that feature or substitutes an equivalent for it (see Van der Lely case, supra, at p 76, lines 29-30;

/ Catnic .....

Catnic case, supra, at pp 226-7, 228, per BUCKLEY LJ in CA, and p 243, per Lord DIPLOCK in HL).

Most of the cases in England and South Africa in this field have dealt with instances of mechanical equivalence rather than chemical equivalence. In principle there is no difference between the two (see Beecham Group Ltd v Bristol Laboratories Ltd and Another [1978] RPC 153, at p 200), but the difficulty in explaining the behaviour of chemical compositions — why and how they react in order to achieve a particular result — and difficulty in predicting how different chemical substances in combination will behave under varying circumstances are often obstacles in the path of a patentee seeking to establish a case of infringement based on chemical equivalence. As it is put in Fox, The Canadian Law and Practice relating to Letters Patent for Inventions, 4th ed, at p 380:-

/ "Even .....

"Even to chemists many of the reactions of various chemical components will be obscure when taken in conjunction with the other agents set forward in combination. As was observed by Maclean J. in Chipman Chemicals Ltd. v Fairview Chemical Co Ltd:

> "There is no prevision in chemistry" is an observation attributed to Sir James Dewar. One cannot always predicate the results that may be obtained from chemical substances in combination, as in a combination of mechanical devices."

It will, therefore, be seen that a consideration of the doctrine of equivalents as applied to chemical patents presents considerable difficulty."

(See also Nobel's Explosives Company Ld v Anderson (1895) 12 RPC 164, at p 167, lines 42-58; In the matter of Andrew's Patent (1907) 24 RPC 349, at p 366, lines 18-37; Beecham's case, supra, at p 200, lines 14-17; Nationwide Chemical Corporation v Wright 458 F Supp 828 (1976), at p 839.)

In general the onus is on the plaintiff to establish a case of infringement, and in a case of

/ alleged.....

alleged mechanical or chemical equivalence the plaintiff would carry the burden of showing that, despite the variant, the infringing product or process falls within the scope of the patent claim.

I come now to apply these principles to the facts of the present case. I shall deal first with the question of essentiality. There can be no question that an R_2 radical is essential to the invention claimed by the patent in suit. The antidote compound needs an R_2 radical just as much as it needs the amide nucleus and the R_1 and R_2 radicals. Without all these elements the antidote cannot exist. That is common cause. Appellants' case, however, is that it was not essential that the R_2 radical be one of the list of radicals contained in claim 1 (from which the R_1 and R_2 radicals "can be selected"); that the R_2 could be a variant which achieved the same result in the same way; and that anyone who made or used a product which contained the amide nucleus, R and

/ R_1 radicals.....

R_1 radicals selected from those listed in claim 1 and such a variant for the R_2 radical would infringe the claim.

In my view this argument is unsound. If the R_2, as defined in claim 1, may be substituted by another radical not listed therein, which is said to be a variant, then I see no reason why the same process of reasoning should not be applied to the R and R_1 radicals; and taken to its logical conclusion I suppose, following a flight of chemical fancy, one might have variants of all three radicals. It would be absurd to suggest that a compound so composed would infringe claim 1. The answer, of course, is that claim 1, properly interpreted, makes it essential that the radicals be selected from the substances or groups listed therein. It is clear to me that the patentee, realising that the antidotal effect of its invention could be achieved by compounds consisting of different chemical variants of the basic composition,

/ cast.....

cast his net as widely as he could (consistent with validity) in order to cover all known or predictable variations. For each radical there were claimed a large number of substances and, as has been pointed out, the possible permutations under the claim 1 formula may run into millions. The expert witnesses were unable to point to any variants not claimed for the R2 radical, which were known at the time of the patent; and, if they had been known, it seems unlikely that the patentee would not have included them in claim 1. In my opinion, persons skilled in this field would, in the light of what was generally known at the date of the patent, have understood claim 1 to define exhaustively the many different alternatives for the R_2 radical; and, of course, for the R and R_1 radicals. And this was what the patentee intended. It would follow that the choice of one of these listed R_2 radicals is an essential integer of claim 1. If that be the case, then there is no room for any

/ argument.....

argument based upon chemical equivalence.

However, if I am wrong in this conclusion and strict adherence to the listed R_2 radicals be not an essential integer, I am nevertheless of the opinion that appellants failed to establish that the R_2 radical of the GENEP PLUS antidote was at the time of the patent a known and obvious variant or substitute which performed the same function as, say, a dialkoxyalkyl radical of a composition falling under claim 1. In the first place it was conceded by appellants' main expert witness, Prof. Baldwin, that at the time when the patent was issued the organic chemist in the field of herbicides (who would be the skilled addressee) knew relatively little about antidotes and no one knew how they functioned; and that even at the time of the trial their "detailed chemical mechanism" was not known. No other expert witness suggested anything to the contrary. In the circumstances it was difficult for appellants to show that the antidote of GENEP

/ PLUS.....

PLUS performed the same function in substantially the same way; and, in my opinion, they failed to do so. (See in this regard the Commissioner's finding, reported judgment at pp 260F - 261A.)

In the second place I am of the opinion that appellants failed to show that the R_2 radical of the GENEP PLUS antidote was in 1971 a known or obvious variant. There was some disagreement between the experts as to the predictability of the biochemical properties of a chemical compound. In relation to the particular field of the invention in issue appellants' expert, Prof. Baldwin, was of the view that given all the examples in the patent having the common property of antidotal effectiveness, he, if presented with another chemical structure, would be able to predict with confidence whether it would behave in the

/ same.....

same way or not. He stated:

> "If the biological data is available for dozens or hundreds of examples and I am given a new example that is new in some structural detail but essentially the same then I can predict with a fair degree of confidence that the compound will behave biochemically in a manner analogous to the behaviour exhibited in tests with other very similar chemical structures. That is, the general proposition is that like structures behave in like manner."

Prof Slife, also called by appellants, gave evidence broadly to the same effect. Respondents' witnesses, Prof Rees, Dr Rinehart and Dr Richter, were less confident. Prof Rees went so far as to say that biochemical reactivity, unlike physical properties or chemical properties, was such a complicated matter that one could never make predictions.

An expert in a particular area, who "researched it hard enough", would have "a very good hunch" that a particular compound might be active, but he would have to do the necessary testing before he would know - and he might be proved

/ to.....

to be totally wrong. Dr Rinehart stated that he did not agree with Prof Baldwin on this issue. He said:

> "Biological testing is just too unpredictable. You have to make and test compounds to find the results..... (R)elatively minor changes in a molecule can have a rather profound effect on its biological activity."

Under cross-examination, however, he conceded that in certain instances the biological effects of a particular compound could be predicted "with reasonable probability". Dr Richter stated that it was not possible to predict in advance the effect of going from the STC to the antidote of ZENEP PLUS. He said:

> "No, you cannot predict, you hope, you make the compound and you test it."

On the question of the credibility of the expert witnesses the Commissioner found that they all expressed their honest opinions and on purely factual issues testified truthfully.

/ Whatever.....

Whatever the true position in regard to predictability may be, both in general and in regard to the specific field of the patent invention, the true enquiry is whether the antidote of GENEP PLUS was a known or obvious variant of one or other of the many antidotes claimed by the patent. In relation to this enquiry I do not find the theorising of the experts, speaking with hindsight, particularly helpful. To my mind, the actual facts are more eloquent and cogent. Firstly, there is the fact that the patentee, with the knowledge and skill at its disposal at the time, demarcated its monopoly in very wide terms (which included many thousands, possibly millions, of compounds) and yet did not see fit to include the antidote of GENEP PLUS. Secondly, there is the fact that both prior to the patenting of the invention and thereafter first appellant's researchers tested many thousands of antidotal compounds - and indeed in some instances the tests resulted in new patents being filed -

/ and.....

and yet at no stage until PPG had done so did they think of synthesizing the STC or GENEP PLUS antidotes, both of which have proved very effective. It is true that Rinehart, having established his lead compound, synthesized both the STC and GENEP PLUS antidotes within a matter of four to five months. But the fact of the matter is that he did it and no-one else did. Whatever it was that led him along this path of research - be it luck, inspired guess-work or hunch - is probably the stuff that chemical inventions are made of.

For these reasons I hold that the Commissioner correctly found that appellants had failed to establish infringement on the basis of chemical equivalence. It follows that the appeal fails.

I turn now to the cross-appeal and the various grounds of invalidity claimed by the respondents. Invalidity must be adjudged with reference to the Patents Act No 37 of 1952.

/ AMBIGUITY.....

AMBIGUITY

The issue with regard to ambiguity was comprehensively dealt with by NESTADT J (see reported judgment at pp 271-8). He held that ambiguity had not been established by the respondents. I agree with the conclusion reached by NESTADT J. I do not propose to deal at any length with this issue. Were I to do so I would find myself repeating much of what was said by NESTADT J. I shall merely state as succinctly as possible my approach to the question.

On appeal respondent's sole argument was that the word "include" in the definition of the phrase "active herbicidal compound", which is to be found in the body of the specification, must be taken as a term of extension rather than one of exhaustive definition. Thus interpreted, the definition is vague and uncertain. This in turn renders vague and uncertain all the claims which contain, or in-

/ corporate.....

corporate by reference, the phrase "active herbicidal compound".

The definition in question reads as follows:

> "When used in the claims of this application, the phrase 'active herbicidal compound' is meant to include the active thiolcarbamates alone or the thiolcarbamates admixed with other active compounds such as the s-triazines and 2,4-D or the active acetanilides and the like."

As has been pointed out in many cases, the word "include" may be used in a definition either extensively, ie for the purpose of enlarging the meaning of a word, or exhaustively, ie as a complete definition of what is comprehended by the word defined. In order to decide which of these two meanings was intended it is necessary to have regard to the context in which "include" appears (see R v Debele 1956 (4) SA 570 (A), at 575A - 576A; and the cases there cited). In Debele's case, which concerned the interpretation of a statute, FAGAN JA pointed

/ out.....

out that one usually finds "includes" used in the extensive sense where the word which is being defined has a general, well-known primary meaning which need not be defined and where the intention is to give the word a wider import than its primary meaning bears. In such a case it may be that the primary meaning requires no mention; it would not be excluded from the definition because it had not been expressly mentioned. Where, however, all the classes of things appearing in the definition fall within the primary meaning of the word, this may be an indication that the intention is merely to fix with certainty the ambit of the word. In that case the mentioning of the classes may be regarded as exhaustive. FAGAN JA also went on to indicate that between these two kinds of case there was a third, in which the draftsman wished to group a number of concepts under a single name, but could not find any existing generic name with the necessary scope. This does not appear

/ to.....

to have any application here.

I have little doubt that the word "include" in the definition of the phrase "active herbicidal compound" should be interpreted exhaustively. In my opinion, the patentee was not seeking to extend the primary meaning of the phrase: his aim was to state what was comprehended within the meaning of the phrase as used by him. As I read the evidence, all the substances mentioned in the definition would fall naturally under the description "active herbicidal compound" and thus this case would seem to fall into the second of the classes mentioned by FAGAN JA in Debele's case (supra). There are other pointers to an exhaustive meaning. Elsewhere in the specification (in fact on the two pages following the definition) the patentee has used the word "include" in an exhaustive sense. The word "include" is used in the context of the phrase "is meant to include". The general description of the inven-

/ tion.....

tion appearing in the specification shows that what the patentee contemplated was an antidote effective when used in conjunction, not with any herbicide, but with the thiolcarbamates, either alone or admixed with other herbicides. And an extensive interpretation of the word "include" would render the definition somewhat pointless.

Respondents' main argument was based on the provisions of claim 8, which reads:-

> "The composition as set forth in Claim 1 wherein said active herbicidal compound is selected from....(then follows a list consisting of various thiolcarbamate compounds, including EPTC, certain acetanilides, certain S-triazines and 2,4-D).....and mixtures thereof."

(Similar arguments were based on claims 9 to 14 inclusive, which contain the same list of herbicidal compounds.) The submission was that claim 8 (and similarly claims 9 to 14 inclusive) postulate a number of alternative herbicidal compounds, including, for example, 2,4-D alone; the

/ definition.....

definition of active herbicidal compound expressly mentions 2,4-D only admixed with a thiolcarbamate; these claims can consequently be harmonized with the definition only on the basis that "includes" bears an extensive meaning. The argument is, in my view, not well-founded. I think it most improbable that the patentee, having specifically stipulated in the definition for 2,4-D in admixture with a thiolcarbamate, should have intended the definition to "include" also 2,4-D by itself. Moreover, in my opinion, the claims in question can be harmonized with an exhaustive interpretation of the definition. Taking claim 8 for example, what it postulates is an active herbicidal compound, composed in the manner required by the definition and using components selected from the list in claim 8 and mixtures thereof. On that basis there is no conflict between claim 8 and an exhaustive interpretation of the definition.

/ For.....

For these reasons I hold that the attack upon the validity of the patent on the ground of ambiguity was correctly dismissed by the Commissioner.

LACK OF NOVELTY

In the Court below a number of prior patents were relied on to show that first appellant's invention as claimed had been anticipated. On appeal appellants' counsel concentrated on a South African patent called the "Ahle patent", it being conceded that, if the defence and claim of anticipation based on the Ahle patent failed, they would not be any more successful on the basis of the other patents cited.

This aspect of the matter was fully dealt with by the Commissioner at pp 283E to 287D of the reported judgment. The Ahle patent describes a method whereby wheat seed and grain sorghum seed can be rendered resistant to a

particular herbicide by coating the seed with certain named protectants prior to planting. It is admitted by appellants that at least one of the protectants named in the Ahle patent falls within the antidote formula of first appellant's patent and that the herbicide referred to in the Ahle patent falls within the definition of "active herbicidal compound". What is significant, however, is that the Ahle patent does not describe a "composition" of protectant and herbicide. It describes the seeds being coated with protectant before planting and the herbicide then being applied by spraying the surface of the soil. The argument pressed on us - I may say without great conviction - by respondents' counsel was that, because the protectant and the herbicide are ultimately brought into contact with one another in the soil, there is in effect a composition.

The argument cannot prevail. I agree entirely

/ with.....

with the view expressed by NESTADT J (see reported judgment p 286 B-E) that the term "composition" contained in the claims of first appellant's patent "clearly and unambiguously means a mixture". It is a mixture of an active herbicidal compound and an antidote, which together form the herbicidal composition. It is this herbicidal composition which is added to the soil and which constitutes the claimed invention. I also have no doubt that the element of being such a composition, ie a mixture, is an essential integer of the claimed invention in the patent in suit and that the Ahle patent does not describe this essential integer. The suggestion that because the Ahle protectant and the herbicide may ultimately and in some manner come into contact with one another in the soil there is in effect a "composition" in the above-described sense is far-fetched and without substance. And in any event that is not the kind of "composition" claimed by

first appellant's patent.

I am, therefore, of the opinion that respondents' claim of lack of novelty was correctly dismissed by the Court a quo.

INSUFFICIENCY

It is claimed by the respondents that because of certain alleged defects in Table III, the complete specification does not fully describe and ascertain the invention and the manner in which it is to be performed.

The Commissioner found that "there is some justification for the criticisms of Table III", but held that, even assuming it to be deficient as alleged, this ground of attack upon the patent could not succeed since it was not strictly necessary to include Table III in the specification: Tables I and II in themselves provide sufficient data to fully describe and ascertain the invention

/ and.....

and the manner in which it is to be performed and disclose the best method of performing the invention known to the applicant at the time when the specification was lodged at the patent office (see reported judgment pp 281E to 282 B).

I agree with the general approach of the Commissioner on this issue. On the question of sufficiency expert evidence is admissible as to whether or not the body of the specification properly construed, affords adequate information to the skilled addressee about how to perform the invention or the particular embodiment of it (see Netlon Ltd and Another v Pacnet (Pty) Ltd 1977 (3) SA 840 (A), at p 868H). As the Commissioner rightly points out respondents' expert witnesses did not testify that they could not understand the specification. Appellants' expert witness, Mr Kezerian, stated that Table III was not necessary to put the invention into operation and that the

/ complete.....

complete specification was sufficient to give instruction as to how to put the invention into operation. And Dr Richter appeared to concede that Table III was not there to give an addressee an understanding as to how the invention was to be put into operation: it merely gave additional information as to comparative results derived from a routine testing operation.

I agree that respondents failed to establish that first appellant's appeal was invalid on grounds of insufficiency.

INUTILITY

On appeal the argument based on inutility was confined to compound 95. It was said that because compound 95 did not have any antidotal effect claim 43, which claims -

> "A novel herbicidal composition substantially as herein described with reference to the examples" -

/ was.....

was invalid for lack of utility. In this connection reference was made to the test result for compound 95 in Table III.

It is accepted that compound 95 represents one of the antidotes exemplified in the body of the specification which, admixed with the exemplified herbicides, would constitute a herbicidal composition covered by claim 43. It appears, too, from Table III that compound 95 when used in conjunction with EPTC at a dosage rate of ,5 per cent weight for weight was ineffective as an antidote. Subsequent experimentation showed, however, that at a dosage rate of ,05 per cent compound 95 did display substantial antidotal qualities. In other words, an excessive quantity of antidote proved ineffective.

I do not think that claim 43 should be construed as claiming compound 95, as the antidote component of the composition, in the dosage referred to in Table III.

One can hardly imagine a patentee claiming something so obviously inutile. Moreover, in construing the claim in this context one must have regard to the way in which it would appeal to the skilled addressee (see Frank & Hirsch (Pty) Ltd v Rodi & Wienenberger, supra, at p 756E). In this case the skilled addressee would realise that it is necessary to select a dosage proportion appropriate to compound 95; and, on the evidence, this was determinable by routine experimentation. On that approach, which I believe to be consistent with what was stated in the Frank & Hirsch case, supra, at pp 755E - 760D, the alleged inutility disappears.

This attack upon the validity of the patent also fails. This disposes of the defence of invalidity and the counter-claim for revocation. It follows too that the cross-appeal must be dismissed.

/ COSTS .....

COSTS

I shall deal first with the costs in the Court a quo. The Commissioner dismissed the claim with costs and likewise dismissed the counter-claim with costs. He furthermore ordered, in regard to costs, the following:

"(a) Costs will include the costs of two counsel;

(b) They are to be taxed on the basis that two thirds of the hearing was directed to the claim in convention and one third to the claim in reconvention;

(c) Liability therefor will be joint only;

(d) The qualifying fees of the witnesses who actually testified will be allowed but only to the extent of:

(i) two thirds of the defendants' witnesses;

(ii) those of Mr Kezerian."

The Commissioner further ordered that the orders granted in terms of paras. (c) and (d) would be provisional pending any further argument. In the event an appeal and

/ cross-appeal.....

cross-appeal were noted and no such further argument took place.

Respondents cross-appealed against —

(1) the apportionement of the costs of the hearing in terms of para. (b) of the order, and

(2) the disallowance of the qualifying fees of certain of respondents' expert witnesses who were not called to give evidence.

As to (1) above, respondents' counsel submitted that the apportionment was unfair to respondents and he suggested that appellants ought to have been ordered to pay 80 per cent of respondents' costs. It is to be noted that the Commissioner apportioned only the time taken at the hearing by the claim and the counter-claim respectively, there apparently being no dispute that the orders dismissing the claim and counter-claim should each

/ carry.....

carry costs. The Commissioner stated (see reported judgment at p 291A) that he found the question of apportionment a difficult one, but, adopting "a robust approach" and doing the best he could on the basis of impressions, he made the apportionment stated above. I have carefully considered the arguments addressed to us on this issue, but am not persuaded that in so apportioning the time taken at the hearing the Commissioner exercised his discretion so erroneously that this Court is entitled to interfere. This ground of cross-appeal must, therefore, be dismissed.

As to (2) above, respondents' counsel referred particularly to the qualifying expenses of Messrs Newman, Burger and Bull. They were all experts, in respect of whom summaries were filed in terms of Rule 36(9)(b) of the Uniform Rules of Court. Respondents' counsel explained that after the cross-examination of Prof Rees, when it became apparent that appellants were no longer pursuing

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the contention that the R_2 radical of the GENEP PLUS antidote fell literally within the claims of the patent, it was decided that witnesses Newman, Burger and Bull, who were to have canvassed this issue and dealt generally with the question of chemical nomenclature, need not be called. Appellants' counsel did not dispute these facts or the propriety of calling all three witnesses had appellants pursued the case based upon "literal infringement": they merely contended that if an expert witness is not called, the Court cannot order that his qualifying expenses be included in the costs.

The Commissioner stated:

> "I understand the rule to be that the fees of persons not called as witnesses will not normally be allowed. No special circumstances were advanced to justify departure from the general rule."

With respect, I do not think that this statement correctly reflects the position. On taxation the quali-

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fying expenses of a witness are not allowed without an order of court or the consent of all interested parties (see Rule 70, schedule, para. E6; also Community Development Board v Katija Suliman Lockhat Trust 1973 (4) SA 225 (N), at p 228G - 229A; Cilliers, Law of Costs, 2nd ed, par. 13.30, p 240). The general rule is that the court will grant an order for the qualifying fees of a witness only where it is satisfied that the payment of such qualifying fees was reasonably necessary (The Government v The Oceana Consolidated Co. 1908 TS 43, at p 48). As far as I am aware, there is no authority for the proposition that normally the court will not make an order in respect of qualifying fees paid to persons not called as witnesses. In fact such authority as I have encountered is contrary thereto (see eg Netlon South Africa Ltd and Another v Pacnet (Pty) Ltd 1974 BP 237 (CP), at p 279D-E; Letraset International Ltd v Transfertech (Pty) Ltd and Others

1981 BP 17 (CP)). The true position, it seems to me, is that the fact that the person concerned was not called as a witness is merely a factor to be considered, in the context of all other relevant circumstances, in determining whether the payment of his qualifying fees by the party applying for the order was reasonably necessary. In the absence of any explanation the failure to call the person as a witness would generally lead to the inference that the payment of the fees was not reasonably necessary. Where, however, as in the present case, it appears that the party in question originally intended to call the person as a witness, and that in the light of the issues then subsisting the person's evidence would have been relevant, but that subsequently the issues were narrowed down or eliminated by reason of the attitude adopted by the other party to the case in such a way as to render the calling of the person as a witness unneces-

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sary, then, in my view, the non-appearance by such person in the witness stand would not of itself lead to such an inference. Indeed in such a case, depending on all the circumstances, the court might well come to the conclusion that the payment of the qualifying fees was reasonably necessary.

It is clear that the Commissioner did not adopt this approach. This vitiates the discretion which he exercised when deciding to disallow the qualifying fees of persons not called as witnesses and leaves it open to this Court to determine the issue. , In view of the above-stated reasons for not calling Messrs Newman, Burger and Bull - which, as I have said, are not disputed by appellants - I do not think that the fact that they did not give evidence should stand in the way of their qualifying fees being regarded as reasonably necessary and being allowed as recoverable party and party costs. Perusal

of their expert summaries indicates that, if called, Messrs Newman, Burger and Bull would have been able to give relevant evidence on the issue that was later not pursued by appellants, viz whether the R_2 radical of the GENEP PLUS antidote fell literally within claim 1 and nomenclature in general. During argument this Court raised the question as to whether the respondents could claim the qualifying fees of all three witnesses as being reasonably necessary. There must after all be a limit to the number of expert witnesses on particular issues that can be regarded as reasonably necessary. No point was made of this by appellants' counsel, however, and in all the circumstances I hold that the Court a quo ought to have allowed the qualifying fees of Messrs Newman, Burger and Bull.

I come now to the costs of appeal and cross-appeal. The appeal has failed in toto and must, therefore, be dismissed with costs. The cross-appeal has succeeded only

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in respect of the qualifying fees of the three named witnesses. In the context of the cross-appeal as a whole this cannot be regarded as substantial success and should not carry the costs of the cross-appeal, nor should any special order be made in regard thereto. The hearing in this Court was spread over three days. For the assistance of the taxing master I rule that the appeal took up 80 per cent of the hearing and the cross-appeal the remaining 20 per cent.

As to both appeal and cross-appeal the costs of two counsel will be allowed.

ORDER

The following order is accordingly made:-

(1) The appeal is dismissed with costs, including the costs of two counsel.

(2) The cross-appeal is allowed to the extent that para. 3(d) of the order of the Court a quo

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is amended by —

(a) the insertion of the following words after the word "testified:

"and those of Messrs Newman, Burger and Bull",

and,

(b) the insertion after the word "witnesses", where it appears for the second time, of:

"including Messrs Newman, Burger and Bull".

Subject to the aforegoing, the cross-appeal is dismissed and respondents shall pay the costs of the cross-appeal, including the costs of two counsel.

(3) For the guidance of the taxing master, when determining the costs of appeal and cross-

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appeal, it is ruled that 80 per cent of the hearing on appeal was devoted to the appeal and 20 per cent to the cross-appeal.

M M CORBETT

VILJOEN JA)
HEFER JA)
GALGUT AJA) concur.
NICHOLAS AJA