

*National Research Development Corporation v Commissioner of Patents*  
[1959] HCA 67

HIGH COURT OF AUSTRALIA

DIXON CJ, KITTO AND WINDEYER JJ

**THE COURT:**

The Deputy Commissioner of Patents having directed under s. 49 (2) of the *Patents Act 1952-1955 Cth* that a complete specification lodged in connexion with an application for a patent be amended by the deletion therefrom of three of the six claims which it contains, the applicant for the patent, National Research Development Corporation, has appealed under s. 49 (4) to this Court as the Appeal Tribunal for the purposes of the Act. The case has been argued before a Full Court under an order made pursuant to r. 23 of O. 44 of the *High Court Rules* and s. 150 of the *Patents Act*.

The Commissioner—and therefore a deputy commissioner: s. 10 (2)—derives his power to give such a direction as he gave in this case from sub-s. (2) of s. 49. It is a power which is exercisable if an applicant does not amend his specification to the Commissioner's satisfaction pursuant to the liberty allowed him by sub-s. (1), that is to say to amend it so as to remove the grounds of objection appearing from an adverse report of the examiner under s. 47 or s. 48. The former of those sections requires the examiner to report, in respect of each application and specification, whether they comply with the requirements of the Act. It is a requirement of the Act that an application shall be for a "patent": s. 34; and "patent" is defined by s. 6 to mean letters patent for an "invention." "Invention" is defined to mean "any manner of new manufacture the subject of letters patent and grant of privilege within section six of the Statute of Monopolies", and to include an alleged invention. Accordingly it is a subject for report under s. 47 whether each claim in a complete specification defines an invention of the kind to which the expression "a manner of new manufacture" in the *Statute of Monopolies* must be understood to refer.

The complete specification in the present case contains, as has been mentioned, six claims. Those numbered 4, 5 and 6 are for selective herbicidal compositions, and are not here in question. Claims 1, 2 and 3 are in these terms: "1. A method for eradicating weeds from crop areas containing a growing crop selected from leguminous fodder crops of the

genera *Trifolium* and *Medicago*, celery and parsnip, which comprises applying to the crop areas a herbicide of the class consisting of the -(2: 4-dichlorophenoxy) -butyric and -caproic acids, their salts, esters, nitriles and amides. 2. A method for the control of weeds of the type of charlock, creeping thistle and annual nettle in a lucerne (alfalfa) crop in which a compound of the class consisting of the -(2: 4-dichlorophenoxy) -butyric and -caproic acids, their salts, esters, nitriles and amides is applied to the crop area in a concentration ranging between 1 to 2 lbs. per acre. 3. A method for the control of weeds of the type of charlock, creeping thistle and annual nettle in a clover crop in which a compound of the class consisting of the -(2: 4-dichlorophenoxy) -butyric and -caproic acids, their salts, esters, nitriles and amides is applied to the crop area in a concentration ranging between 1 to 2 lbs. per acre."

The examiner, in his report under ss. 47 and 48, stated objections to these three claims in the following terms: "It appears that the active substances of the invention are known. Claims 1 to 3 are not therefore directed to any manner of manufacture in that they are claims to the mere use of known substances—which use also does not result in any vendible product".

The appellant did not avail itself of the right of amendment given by s. 49 (2). The matter came before the Deputy Commissioner, and on the authority of *Re Application by Standard Oil Development Co.*<sup>1</sup> he decided, in respect of each of the three claims, that the method claimed was not a manner of manufacture, his reason being that it did not result in any vendible product.

The power of the Commissioner under s. 49 (2) is discretionary, but since a requirement that claims be deleted from a specification is equivalent to a refusal of the patent for the invention claimed thereby the discretion ought not to be exercised by making such a requirement except in circumstances which would justify the refusal of a patent on a specification containing those claims and no others. The principles which govern the power to refuse a patent have been discussed recently in the case of *Commissioner of Patents v. Microcell Ltd.*<sup>2</sup> It is shown in that case that in the portion of the definition of invention which includes in the meaning of the word an alleged invention, the word "alleged" goes only to the epithet "new" in the expression "a

<sup>1</sup> (1951) 68 R.P.C. 114.

<sup>2</sup> (1959) 102 C.L.R. 232.

manner of new manufacture", and that accordingly the Commissioner may properly reject a claim for a process which is not within the concept of a "manufacture". But the case cited shows also that even if the process is within the concept the Commissioner is not bound to accept the allegation of the applicant that it is new, if it is apparent on the face of the specification, when properly construed, that the allegation is unfounded: see also *Re Johnson's Patent*.<sup>3</sup> It is therefore open to the Commissioner in a proper case to direct the deletion of a claim for a process which may be seen from the specification, considered as a whole, to be "outside the whole scope of what is known as invention" because, in the words of Lord *Buckmaster*, when Solicitor-General, in *Re B.A.'s Application*<sup>4</sup> it is "nothing but a claim for a new use of an old substance".<sup>5</sup>

But, as the *Microcell Case*<sup>6</sup> emphasizes, it must always be remembered how much is wrapped up in the "nothing but". Lord *Buckmaster* did not use the words without explanation:—"when once a substance is known," he said, "its methods of production ascertained, its characteristics and its constituents well defined, you cannot patent the use of that for a purpose which was hitherto unknown" (3) And why? Because in the postulated state of knowledge the new purpose is no more than analogous to the purposes for which the utility of the substance is already known, and therefore your suggestion of the new purpose lacks the quality of inventiveness: see per *Bowen L.J.* in *Elias v. Grovesend Tinsplate Co.*<sup>7</sup> Unless invention is found in some new method of using the material or some new adaptation of it so as to serve the new purpose, no valid patent can be granted: see *Moser v. Marsden*;<sup>8</sup> *Pirrie v. York Street Flax Spinning Co., Ltd.*<sup>9</sup> If, however, the new use that is proposed consists in taking advantage of a hitherto unknown or unsuspected property of the material, the situation is not that to which Lord *Buckmaster's* language refers. In that case there may be invention in the suggestion that the substance may be used to serve the new purpose; and then, provided that a practical method of so using it is disclosed and that the process comes within the concept of patent law ultimately

<sup>3</sup> (1937) 55 R.P.C. 4, at p. 19.

<sup>4</sup> (1915) 32 R.P.C. 348.

<sup>5</sup> (1915) 32 R.P.C., at p. 349.

<sup>6</sup> (1959) 102 C.L.R. 232.

<sup>7</sup> (1890) 7 R.P.C. 455, at p. 468.

<sup>8</sup> (1893) 10 R.P.C. 350, at p. 358.

<sup>9</sup> (1894) 11 R.P.C. 429, at p. 452.

traceable to the use in the *Statute of Monopolies* of the words "manner of manufacture," all the elements of a patentable invention are present: see the *Microcell Case*.<sup>10</sup> It is not necessary that in addition the proposed method should itself be novel or involve any inventive step: *Hickton's Patent Syndicate v. Patents and Machine Improvements Co. Ltd.*<sup>11</sup>

This, we consider, differs not at all from the view which *Lindley* L.J. expressed in the passage in his judgment in the case of *Lane Fox v. Kensington and Knightsbridge Electric Lighting Co.*<sup>12</sup> which is often cited and was referred to more than once in the argument of the present case, namely that a man who discovers that a known machine (his Lordship might equally have said a known substance) can produce effects which no one before him knew could be produced by it has made a discovery, but has not made a patentable invention unless he so uses his knowledge and ingenuity as to produce either a new and useful thing or result, or a new and useful method of producing an old thing or result. His Lordship went on to say that the discovery how to use a known thing for a new purpose will be a patentable invention if there is novelty in the mode of using it as distinguished from novelty of purpose, or if any new modification of the thing or any new appliance is necessary for using it for its new purpose, and if such mode of user, or modification, or appliance involves any appreciable merit. But the whole passage is directed to the case of a thing which is known—not only the existence of which is known as a scientific fact, but the characteristics and properties of which are understood, so that the "appreciable merit"<sup>13</sup> which is requisite for a patentable invention must be found, if it is to be found at all, exclusively in something which the alleged invention has superadded to the existing knowledge concerning the thing. There is nothing in the judgment of *Lindley* L.J. to justify a denial that, in respect of a process for achieving a useful result by the employment of a substance to produce effects which antecedently it was not understood to be capable of producing, the inventiveness which is essential for a valid grant of a patent may be found in the step which consists of suggesting the use of the thing for the new purpose, notwithstanding that there is no novelty or "appreciable merit" in any suggested mode of using the thing, or any modification of the thing or of an appliance necessary for using it for the new

<sup>10</sup> (1959) 102 C.L.R., at pp. 248, 249.

<sup>11</sup> (1909) 26 R.P.C. 339.

<sup>12</sup> (1892) 3 Ch. 424, at pp. 428, 429; (1892) 9 R.P.C. 413, at p. 416.

<sup>13</sup> (1892) 3 Ch., at p. 429; (1892) 9 R.P.C., at p. 416.

purpose. It is not decisive—it is not even helpful—to point out in such a case that beyond discovery of a scientific fact nothing has been added except the suggestion that nature, in its newly ascertained aspect, be allowed to work in its own way. Arguments of this kind may be answered as *Frankfurter J.* answered them in *Funk Bros. Seed Co. v. Kalo Inoculant Co.*<sup>14</sup> "It only confuses the issue," the learned Justice said, "to introduce such terms as "the work of nature" and the "laws of nature". For these are vague and malleable terms infected with too much ambiguity and equivocation. Everything that happens may be deemed "the work of nature", and any patentable composite exemplifies in its properties "the laws of nature". Arguments drawn from such terms for ascertaining patentability could fairly be employed to challenge almost any patent".<sup>15</sup> The truth is that the distinction between discovery and invention is not precise enough to be other than misleading in this area of discussion. There may indeed be a discovery without invention—either because the discovery is of some piece of abstract information without any suggestion of a practical application of it to a useful end, or because its application lies outside the realm of "manufacture". But where a person finds out that a useful result may be produced by doing something which has not been done by that procedure before, his claim for a patent is not validly answered by telling him that although there was ingenuity in his discovery that the materials used in the process would produce the useful result no ingenuity was involved in showing how the discovery, once it had been made, might be applied. The fallacy lies in dividing up the process that he puts forward as his invention. It is the whole process that must be considered; and he need not show more than one inventive step in the advance which he has made beyond the prior limits of the relevant art. This is perhaps nowhere more clearly put than it was by *Fletcher Moulton L.J.* in *Hickton's Patent Syndicate v. Patents and Machine Improvements Co. Ltd.*<sup>16</sup> when he said of Watt's invention for the condensation of steam, out of which the steam engine grew: "Now can it be suggested that it required any invention whatever to carry out that idea when once you had got it? It could be done in a thousand ways and by any competent engineer, but the invention was in the idea, and when he had once got that idea, the carrying out of it was perfectly easy. To say that the conception may be meritorious and may involve invention and may be new and original, and simply because when you have once got the idea it is easy to carry it out, that that

<sup>14</sup> (1948) 333 U.S. 127 [92 Law. Ed. 588].

<sup>15</sup> (1948) 333 U.S., at pp. 134, 135 [92 Law. Ed., at p. 591].

<sup>16</sup> (1909) 26 R.P.C. 339.

deprives it of the title of being a new invention according to our patent law, is, I think, an extremely dangerous principle and justified neither by reason nor authority".<sup>17</sup>

No-one reading the specification in the present case can fail to see that what it claims is a new process for ridding crop areas of certain kinds of weeds, not by applying chemicals the properties of which were formerly well understood so that the idea of using them for this purpose involved no inventive step, but by applying chemicals which formerly were supposed not to be useful for this kind of purpose at all. There is a clear assertion of a discovery that a useful result can be attained by doing something which the applicant's research has shown for the first time to be capable of producing that result. This is not a claim which can be put aside as a claim for a new use of an old substance, true though it be that the chemicals themselves were known to science before the applicant's investigations began. It is a claim which denies that the chemicals are old substances in the sense in which the expression has been used in such cases as *Re A.F.'s Application*;<sup>18</sup> *Re B.A.'s Application*<sup>19</sup> and *Re C.G.R.'s Application*.<sup>20</sup> It treats them as substances which in the relevant sense are new, that is to say as substances which formerly were known only partially and, so far as weed-killing potentialities are concerned, were unknown; and its tenor is that by an application of scientific ingenuity, combining knowledge, thought and experimentation, not only in relation to the chemicals but in relation also to the enzyme systems of certain weeds and plants, the applicant has evolved a new and useful method of destroying weeds without harming useful vegetation amongst which they are growing. It is irrelevant, even if true, that once the discovery was made that the chemicals produce a lethal reaction when applied to the weeds and produce no such reaction when applied to the crops there was no more ingenuity required in order to show how the process might be performed. The point that matters is that a weed-killing process is claimed which is distinguished from previously known processes by a feature the suggestion of which for such a process involved a step plainly inventive.

<sup>17</sup> (1909) 26 R.P.C., at pp. 347-348.

<sup>18</sup> (1913) 31 R.P.C. 58.

<sup>19</sup> (1915) 32 R.P.C. 348.

<sup>20</sup> (1924) 42 R.P.C. 320.

Before proceeding from this point it will be as well to look at the specification in more detail. It describes the invention as one relating to "selective herbicidal compositions containing one or more aryloxyaliphatic compounds and to new methods of weed control utilising the said compositions". The object described is the destruction of weeds in areas sown with broad-leaf crops which cannot be treated satisfactorily or economically with herbicidal compositions of the kinds previously employed, that is to say with the "contact" type of herbicides (such as sulphuric acid, dinitro-compounds and copper salts) or with the more recently-developed hormone or systemic type of compounds. The former are said to depend (i.e. for their selectivity) on differences in morphology and habit of growth between crop and weed, while the latter, which stimulate and modify plant growth at certain concentrations and retard and finally kill the plant at higher concentrations, depend upon differences of physiological resistance as between certain families of plants, particularly monocotyledons on the one hand and dicotyledons on the other. The specification asserts, and offers possible explanations of the fact, that throughout the world only very few aryloxyaliphatic compounds are used on any substantial scale as selective herbicides, and that those few all belong to the acetic acid or alkyl-substituted acetic acid series. Then it says that use of these herbicides for a sufficiently long time and in varied circumstances has brought out their inherent limitations, and especially the fact that there are many important plants of which they are as destructive as, or more destructive than, they are of the neighbouring weeds. In general, it is said, none of the herbicides previously known offers a satisfactory answer to the problem of controlling weeds among broad-leafed plants at the concentrations customarily used. To this there is added later a statement that at the present time no satisfactory herbicide is available for eradicating weeds in crops of clover, without at the same time damaging the crop itself. Yet an estimate is made that some forty million acres of clover are sown in the United States of America per annum. The specification goes on to announce the discovery that (we are altering the language slightly for the sake of clarity) in addition to the factors on which herbicides of the contact type and the hormone type respectively have been based there is a further factor of which advantage may be taken to achieve selective weed control on a new principle. The newly discovered factor is that there is such a relationship between the enzyme make-up of the tissues of some plants and a certain type of hormone herbicide derived from straight-chain aliphatic acids higher in the series than acetic acid that in those plants the herbicide is not degraded to the active acetic derivatives, although it is so degraded within the tissues of many common weeds normally found in association with those plants. The consequence is that this type of herbicide kills the weeds in which it is so degraded but has no deleterious effect on the plants in which it is not. The

particular type of herbicide is described as an omega aryloxy-alkane-carboxylic acid type, and it is suggested that the explanation of what has been discovered lies in some relation between the specific beta-oxidase enzyme systems of the plants referred to and the nature and position of nuclear substituents in the herbicides. The plants include important varieties of leguminous fodder crops of the genera trifolium and medicago, such as clover, lucerne (alfalfa), parsnips and celery. The herbicides particularly mentioned are those of the class consisting of the -(2:4-dichlorophenoxy) -butyric and -caproic acids, commonly referred to as 2:4-DB and 2:4-DC, and certain derivatives of these acids. Elsewhere in the specification the derivatives are identified as the salts of the named acids with inorganic or organic bases, of which examples are the sodium, potassium, ammonium, alkylamine and alkanolamine (including ethanolamine) salts, their esters of which examples are the methyl and ethyl esters, and their amides and nitriles.

For the practical application of the herbicides of the newly-discovered selective type, no particular method is prescribed. The degree of concentration is termed "herbicidal" and "conventional"; but details are given of the results obtained by experiments undertaken in order to compare the effect, on seedlings of certain kinds of weeds and plants in pots, of the previously-used hormone weedicide 2:4-dichlorophenoxyacetic acid (2:4-D) with the effect of the butyric and caproic acid weedicides (2:4-DB and 2:4-DC), and field experiments to ascertain the efficacy of 2:4-DB as a solution of its diethanolamine salt and as its ethyl ester. These details include particulars of certain aqueous solutions found to be efficacious, and dose rates in pounds weight per acre both for a solution of the diethanolamine salt of 2:4-DB and for an emulsion of the ethyl ester of 2:4-DB made up from a self-emulsifying concentrate in mineral oil. The specification goes on to say: "The selected compounds may be employed in any of the physical forms in which plant-growth regulants or herbicides of the 2:4-D type are customarily used; and in practice are employed in association with an inert diluent. In the case of water-soluble compounds e.g. the alkali metal salts, it is convenient to employ an aqueous solution where application in liquid form is desired. Alternatively, they may be used as solid compositions in conjunction, therefore, with solid diluents such as talc, clay or other such inert material. In the case of compounds insoluble or but sparingly soluble in water, it is convenient to employ them in the form of an aqueous emulsion incorporating a wetting, dispersing or emulsifying agent of the ionic or non-ionic type, the latter being preferred since they are not affected by electrolytes. For the purpose of the invention, the aforesaid herbicidal compounds will be used in a concentration of at least 0.05% by weight, the balance consisting of a vehicle,



fillers, etc. The optimum concentration will naturally vary according to the crop to be treated but in general concentrations ranging between 1 to 2 lbs. per acre will be entirely satisfactory". Then follow thirteen examples of formulae for compositions which will be effective, comprising aqueous solutions and emulsions, both for application at rates stated in terms of gallons per acre, and dust mixtures (98 per cent being native gypsum) for application at rates in hundredweights per acre.

The purpose of going thus fully into the contents of the specification is to show that it is out of the question to hold that on the face of the document, properly construed, the process the subject of the first three claims appears as nothing but a new use of an old substance. If credit be given to the case which is made, the process differs from the previously-known processes of its kind in this, that it employs substances the suggestion of which for the purpose in hand was new, was not obvious, and was to be arrived at only by an exercise of scientific ingenuity, based upon knowledge and applied in experimental research. The fact that the substances themselves were already known to man affords no valid reason for denying that the suggestion was inventive.

The central question in the case remains. It is whether the process that is claimed falls within the category of inventions to which, by definition, the application of the *Patents Act* is confined. The definition, it will be remembered, is exclusive: invention means any manner of new manufacture the subject of letters patent and grant of privilege within s. 6 of the *Statute of Monopolies*. The Commissioner, adopting certain judicial pronouncements to which reference will be made, emphasizes the word "manufacture" and contends for an interpretation of it which, though not narrow, is restricted to vendible products and processes for their production, and excludes all agricultural and horticultural processes. On the grounds both of the suggested restriction and of the suggested exclusion he denies that a process for killing weeds can be within the relevant concept of invention. The appellant, on the other hand, urges upon us a wider view: that there is a "manufacture" such as might properly have been the subject of letters patent and grant of privilege under s. 6 of the *Statute of Monopolies* whenever a process produces, either immediately or ultimately, a useful physical result in relation to a material or tangible entity.

Section 6 of the *Statute of Monopolies* provides that the declarations of invalidity contained in the preceding provisions of the Act "shall not extend to any letters patents and graunts of

privelege hereafter to be made of the sole working or makinge of any manner of new manufactures within this realme, to the true and first inventor and inventors of such manufactures, which others at the tyme of makinge such letters patents and graunts shall not use, soe as alsoe they be not contrary to the lawe or mischievous to the state by raisinge prices of comodities at home, or hurt of trade, or generallie inconvenient": Halsbury's Statutes of England, 2nd ed. vol. 17 (1950), p. 619. It is of the first importance to remember always that the *Patents Act 1952-1955 Cth*, like its predecessor the *Patents Act 1903 Cth* and corresponding statutes of the United Kingdom (see the *Patents, Designs and Trade Marks Act 1883*, s. 46; the *Patents Act 1907*, s. 93; and the *Patents Act 1949*, s. 101), defines the word "invention", not by direct explication and in the language of its own day, nor yet by carrying forward the usage of the period in which the *Statute of Monopolies* was passed, but by reference to the established ambit of s. 6 of that Statute. The inquiry which the definition demands is an inquiry into the scope of the permissible subject matter of letters patent and grants of privilege protected by the section. It is an inquiry not into the meaning of a word so much as into the breadth of the concept which the law has developed by its consideration of the text and purpose of the *Statute of Monopolies*. One may remark that although the Statute spoke of the inventor it nowhere spoke of the invention; all that is nowadays understood by the latter word as used in patent law it comprehended in "new manufactures". The word "manufacture" finds a place in the present Act, not as a word intended to reduce a question of patentability to a question of verbal interpretation, but simply as the general title found in the *Statute of Monopolies* for the whole category under which all grants of patents which may be made in accordance with the developed principles of patent law are to be subsumed. It is therefore a mistake, and a mistake likely to lead to an incorrect conclusion, to treat the question whether a given process or product is within the definition as if that question could be restated in the form: "Is this a manner (or kind) of manufacture?" It is a mistake which tends to limit one's thinking by reference to the idea of making tangible goods by hand or by machine, because "manufacture" as a word of everyday speech generally conveys that idea. The right question is: "Is this a proper subject of letters patent according to the principles which have been developed for the application of s. 6 of the *Statute of Monopolies*?"

It is a very different question. A perusal of the definitions and quotations appearing in the Oxford English Dictionary under "manufacture" will show that the word has always admitted of applications beyond the limits which a strict observance of its etymology would suggest,

and, as the present Chief Justice said in *Maeder v. Busch*,<sup>21</sup> a widening conception of the notion has been a characteristic of the growth of patent law. As early as 1795 it was possible for *Eyre C.J.* to say that "the exposition of the statute as far as usage will expound it, has gone much beyond the letter" (2); and the width of the meaning that had already been accepted may be gauged from the statement of the same learned judge that "manufacture" extended "to any new results of principles carried into practice new processes in any art producing effects useful to the public": *Boulton v. Bull*.<sup>22</sup> By 1842 it was finally settled that "manufacture" was used in the *Statute of Monopolies* in the dual sense which comprehends both a process and a product: *Crane v. Price*.<sup>23</sup> But a question which appears still to await final decision is whether it is enough that a process produces a useful result or whether it is necessary that some physical thing is either brought into existence or so affected as the better to serve man's purposes. In some of the cases it is suggested that the process must issue in some "vendible matter" or a "vendible product". The former expression was used by *Heath J.* in *Boulton v. Bull*<sup>24</sup> in the course of maintaining the opinion, which must now be considered heretical, that there could not be a patent for a method; but no such expression appears in the powerful judgment in which *Eyre C.J.* maintained the opposite view and reached the conclusion in the particular case which was ultimately upheld in *Hornblower v. Boulton*.<sup>25</sup> *Abbott C.J.* in *R. v. Wheeler*<sup>26</sup> having spoken of a "thing made, which is useful for its own sake, and vendible as such",<sup>27</sup> went on to show that he did not find in such expressions as those any absolute test. He said (the italics are ours): "Something of a corporeal and substantial nature, something that can be made by man from the matters subjected to his art and skill, *or at the least some new mode of employing practically his art and skill*, is requisite to satisfy this word".<sup>28</sup> It is of course not possible to treat such a statement as conclusive of the question. The need for qualification must be confessed, even if only in order to put aside, as they apparently must be put aside, processes for treating diseases of the human body: see *Re C. & W.'s Application*;<sup>29</sup> *Maeder v. Busch*.<sup>30</sup>

<sup>21</sup> (1938) 59 C.L.R. 684, at p. 706.

<sup>22</sup> (1795) 1 H. Bl. 463, at p. 492 [126 E.R. 651, at p. 666].

<sup>23</sup> (1842) 1 Web. P.C. 393; 4 Man. & G. 580 [134 E.R. 239].

<sup>24</sup> (1795) 1 H. Bl. 463, at p. 482. [126 E.R. 651, at p. 661].

<sup>25</sup> (1799) 8 T.R. 95 [101 E.R. 1285].

<sup>26</sup> (1819) 2 B. & Ald. 345. [106 E.R. 392].

<sup>27</sup> (1819) 2 B. & Ald., at p. 349 [106 E.R., at p. 394].

<sup>28</sup> (1819) 2 B. Ald., at p. 350 [106 E.R., at p. 395].

<sup>29</sup> (1914) 31 R.P.C. 235.

<sup>30</sup> (1938) 59 C.L.R. 684.

When appearing as counsel in the case last cited, Sir *George Ligertwood* made a helpful suggestion which in effect amended the statement of *Abbott C.J.* to read "or at least some new method of employing practically the art and skill of the workman in a manual art".<sup>31</sup> But even so comprehensive a statement needs to be given a somewhat flexible meaning to allow for long-standing authorities such as *Forsyth v. Riviere*<sup>32</sup> (where the patent was for a method of discharging firearms), and *The Electric Telegraph Co. v. Brett*<sup>33</sup> (where the patent was for a method of giving duplicate electric signals). The truth is that any attempt to state the ambit of s. 6 of the *Statute of Monopolies* by precisely defining "manufacture" is bound to fail. The purpose of s. 6, it must be remembered, was to allow the use of the prerogative to encourage national development in a field which already, in 1623, was seen to be excitingly unpredictable. To attempt to place upon the idea the fetters of an exact verbal formula could never have been sound. It would be unsound to the point of folly to attempt to do so now, when science has made such advances that the concrete applications of the notion which were familiar in 1623 can be seen to provide only the more obvious, not to say the more primitive, illustrations of the broad sweep of the concept.

In a case which has been much cited in recent times, *Re G.E.C.'s Application*,<sup>34</sup> *Morton J.*, as he then was, while disclaiming the intention of laying down any hard and fast rule applicable to all cases, put forward a proposition which, if literally applied, would have a narrowing effect on the law and indeed has already been found to stand as much in need as the statute itself of a generous interpretation. The proposition was that "a method or process is a manner of manufacture if it (a) results in the production of some vendible product or (b) improves or restores to its former condition a vendible product or (c) has the effect of preserving from deterioration some vendible product to which it is applied".<sup>35</sup> Any criticism to which this is open, as Lord *Jenkins* remarked in *Samuel Reitzman v. Grahame-Chapman and Derustit Ltd.*,<sup>36</sup> is certainly not on the score of its being too wide. It is valuable for its insistence that in patent law at the present day a process may be within the concept of "manufacture" notwithstanding

<sup>31</sup> (1938) 59 C.L.R., at p. 696.

<sup>32</sup> (1819) 1 Web. P.C. 95.

<sup>33</sup> (1851) 10 C.B. 838 [138 E.R. 331].

<sup>34</sup> (1942) 60 R.P.C. 1.

<sup>35</sup> (1942) 60 R.P.C., at p. 4.

<sup>36</sup> (1950) 68 R.P.C. 25, at p. 32.

that it merely improves, restores, or preserves some antecedently existing thing; but in so far as it may appear to restrict the concept by its use of the expression "vendible product", it must be considered now as substantially qualified by the comments made upon it by *Evershed J.* (as he then was) in *Re Cementation Co. Ltd's Application*<sup>37</sup> and in *Re Rantzen's Application*,<sup>38</sup> and by *Lloyd-Jacob J.* in *Re Elton and Leda Chemicals Ltd.'s Application*.<sup>39</sup>

The Cementation Case<sup>40</sup> has importance here, because it decided that a process of treating a stratum of subterranean soil with chemicals may be patentable, the word "product" in *Morton J.*'s formulation being understood in a sense wide enough to include such a subject-matter. The process in question consisted in drilling holes from the surface to a subterranean formation which was liable to combustion, and introducing through the holes material of such a nature that it would dissociate upon the initiation of combustion, with liberation of carbon dioxide and the consequential extinguishing of the fire. For this process *Evershed J.* granted a patent, observing that the emphasis in *Morton J.*'s "rule" was upon the three activities of production, improvement or restoration, and prevention from deterioration, and that the word "product" was used in a sense which included "that which is produced by any action, operation or work; a production; the result"; so that it denoted the subject-matter of each of the three forms of activity referred to, and was not intended to limit the conception by reference to the common acceptance of "product".

A little later, in *Re Bovingdon's Application*,<sup>41</sup> *Evershed J.* refused a patent for a process of fumigating buildings, on the ground that the killing of insects in a building is not a process of manufacture; but he appears to have thought that if the process had involved the impregnation of the fabric it would have been a manufacture.

In *Rantzen's Case*,<sup>42</sup> the same learned judge had before him an application for a patent for a method of electrical transmission. The process was one which affected nothing but electrical

<sup>37</sup> (1945) 62 R.P.C. 151.

<sup>38</sup> (1946) 64 R.P.C. 63, at p. 65.

<sup>39</sup> (1957) R.P.C. 267.

<sup>40</sup> (1945) 62 R.P.C. 151.

<sup>41</sup> (1946) 64 R.P.C. 20.

<sup>42</sup> (1946) 64 R.P.C. 63.

oscillations, that is to say (as they were defined in the evidence) "the manner in which electrical energy exists when being transmitted either by means of wire or other conducting media or through space". The method was held to be a "manufacture", not by rejecting *Morton J.*'s mode of describing the ambit of the word, but by interpreting his expression "vendible product" in a sense wide enough to include electrical energy, despite its non-material character, because of its analogy, in commercial respects, with material commodities. That this was sound is hardly to be doubted. In the varying applications of which the word "manufacture" is capable analogy has always played a considerable part.

In this state of the authorities *Re Standard Oil Development Co.'s Application*<sup>43</sup> arose for decision. It was a case which resembled the present in that a patent was sought for a selective herbicide. Apparently the claims in the specification as originally drawn resembled those in the specification before us. There were claims for the herbicidal compounds, and also claims for the application of those compounds to vegetable plots in order to eliminate weeds. But after the examiner had made an objection the exact nature of which does not appear, the claims were amended by a draftsman who had his eye on the "rule" formulated by *Morton J.* in the G.E.C. Case.<sup>44</sup> The invention was described as "a method for the production of an improved tract of arable land from a tract which contains growing vegetables of the Umbelliferae family together with weeds of the type of grasses and/or clover, which comprises applying to the land and to the vegetation therein a herbicidal composition (the ingredients and temperature range being stated) in such an amount that the weeds are substantially completely killed while the vegetables are substantially unharmed, whereby there is obtained an improved tract of substantially weed-free vegetable-containing land".

The case came before *Lloyd-Jacob J.*, who refused a patent. The judgment deals with two contentions by which the application had been supported. One was that the method resulted in the production, improvement, or prevention from deterioration, of a vendible product, namely the growing crop; and his Lordship disposed of it by pointing out, first, that it was not the treatment that produced the crop; secondly, that any resulting improvement was not in the crop

<sup>43</sup> (1951) 68 R.P.C. 114.

<sup>44</sup> (1942) 60 R.P.C. 1.

but in the cultivation, though of course that might ultimately be reflected in the quality and condition of the crop; and thirdly, that since the only direct effect of the process was upon the weeds there was no justification for saying that it preserved the crop from deterioration. The other contention seems to have been that it was a sufficient ground for holding the process to be a "manufacture" that it resulted in a product consisting of "arable land treated with selective herbicides for the raising of vegetables". To this his Lordship gave two answers. First, he said that it was beyond the capacity of the applicants to provide arable land. "Given the arable land, they can doubtless treat it, but their contribution does not embrace the making of the land". The observation may be permitted that what had to be considered was not a contention that the process was within the first limb of *Morton J.*'s "rule" as being a process which produced arable land, but a contention that it was within the second limb as being a process which improved arable land. The learned judge's second answer so understood the argument. The answer was that the land remained unaltered. "Some of the herbs in or upon it are affected", his Lordship said. "The land is merely the carrier both of crop and herbage and plays no part in the operation by which they are selectively affected". No doubt the use of the adjective "arable" in the specification had fastened attention on the nature or composition of the soil itself, and invited the answer that the soil was not made arable by the process of killing the weeds. But it seems hardly sufficient to treat a case like this as if it were covered by the reasoning of *Bovingdon's Case*<sup>45</sup> and to dismiss it by saying that, since the structure of the soil is unaffected by the killing of weeds, the process of converting a weed-infested area into a weed-free area is not within the notion of "manufacture". Why is it not as completely within it as the process of converting a combustible subterranean formation into a non-combustible formation, or making a building fire-proof? Once it is conceded that land may be a "product" within the sense of *Morton J.*'s "rule" as now understood, and that accordingly a process for improving it may be a "manufacture" in the relevant sense of the word—and *Lloyd-Jacob J.* did not question this—a considerable step seems to have been taken towards establishing that an artificial process for suppressing unwanted forms of growth which impede the profitable use of land may be within the concept. There is of course this point of distinction in fact from the illustrations mentioned, that here the improvement is negative, consisting of the elimination of what had formed a prejudicial element in the growth upon the land of the products of agriculture, whereas there

<sup>45</sup> (1946) 64 R.P.C. 20.

the improvement is positive, consisting of the addition to the land of a new advantageous feature. But that can hardly be a valid objection. As *Eyre* C.J. pointed out in *Boulton v. Bull*,<sup>46</sup> though the patent in *Hartley's Case* (for the fire-proofing of a building or ship) could not have been for the effect produced, because the effect was merely negative, it was none the less validly granted for the process. In *Hall v. Jarvis*<sup>47</sup> the patent was upheld although it was for a process which did nothing more than remove superfluous and loose fibres, or ends of fibres, from lace: see *Webster's* note 1 *Web. P.C.*, at p. 97. If a new process for chemically cleaning dirty linen would be good subject-matter for a patent—and we have the authority of *Parker J.* in *Re Alsop's Patent*,<sup>48</sup> for believing that it would—why not a new process for chemically ridding land of unwanted growth?

In the next case which calls for attention it was found necessary, as was sure to happen sooner or later, to emphasize the inconclusiveness of *Morton J.*'s "rule". The case was *Re Elton and Leda Chemicals Ltd.'s Application*.<sup>49</sup> A patent was sought for a method of dispersing fog, consisting in introducing a surface-active agent in the form of a smoke or spray into the fog in order to remove or lower the electric charge carried by the surfaces of the droplets of the fog, whereby coalescence of the droplets would take place and they would precipitate as rain or drizzle. *Lloyd-Jacob J.* allowed the application to proceed, not being satisfied that a sustainable claim could not be based on the specification. The Patents Office had relied on *Morton J.*'s "rule", and the argument on the appeal was directed both to "vendible" and to "product". As to the former word the learned judge made the comment that the convenience of the vendibility test was obvious, and "in the majority of cases" plainly applicable. "Applied with a little latitude", he said, "it might afford some assistance in the present case, for a fog-free atmosphere or a deliberately induced rainfall could be a factor in the site value of the land whereon the Applicants' process was applied".<sup>50</sup> Whether or not one would be prepared to put the matter quite in that way, the underlying idea seems to be the same as that which *Evershed J.* suggested in *Rantzen's Case*,<sup>51</sup> where he spoke of the expression "vendible product" as laying proper

<sup>46</sup> (1795) 2 H. Bl. 463, at p. 494 [126 E.R. 651, at p. 667].

<sup>47</sup> (1822) 1 *Web. P.C.* 100.

<sup>48</sup> (1907) 24 *R.P.C.* 733, at p. 752.

<sup>49</sup> (1957) *R.P.C.* 267.

<sup>50</sup> (1957) *R.P.C.*, at p. 269.

<sup>51</sup> (1946) 64 *R.P.C.*, at p. 66.



emphasis upon the trading or industrial character of the processes intended to be comprehended by the Acts—their "industrial or commercial or trading character" as *Lloyd-Jacob J.* himself described it in *Re Lenard's Application*.<sup>52</sup> The point is that a process, to fall within the limits of patentability which the context of the *Statute of Monopolies* has supplied, must be one that offers some advantage which is material, in the sense that the process belongs to a useful art as distinct from a fine art (see *Re Virginia-Carolina Chemical Corporation's Application*<sup>53</sup>)—that its value to the country is in the field of economic endeavour. (The exclusion of methods of surgery and other processes for treating the human body may well lie outside the concept of invention because the whole subject is conceived as essentially non-economic: see *Maeder v. Busch*<sup>54</sup>).

But the judgment in the *Elton and Leda Chemicals Case*<sup>55</sup> is also valuable for present purposes by reason of a suggestion which it contains as to the true office of the word "product" in such contexts as that of *Morton J.'s "rule"*. The learned judge said: "There has been no question, at any rate since before the year 1800, that the expression "manner of manufacture" in the Statute of James I must be construed in the sense of including a practice of making as well as the means of making and the product of making. It has thus been appreciated that, although an inventor may use no newly devised mechanism, nor produce a new substance, none the less he may, by providing some new and useful effect, appropriate for himself a patent monopoly in such improved result by covering the mode or manner by means of which his result is secured. Seeing that the promise which he offers is some new and useful effect, there must of necessity be some product whereby the validity of his promise can be tested".<sup>56</sup> Notwithstanding the use of the word "making", which but for the context might have been taken to indicate the narrow view that an article or material must result if a process is to be a "manufacture", the tenor of the passage seems to be that what is meant by a "product" in relation to a process is only something in which the new and useful effect may be observed. Sufficient authority has been cited to show that the "something" need not be a "thing" in the sense of an article; it may be

<sup>52</sup> (1954) 71 R.P.C. 190, at p. 192.

<sup>53</sup> (1958) R.P.C. 35, at p. 36.

<sup>54</sup> (1938) 59 C.L.R., at p. 706.

<sup>55</sup> (1957) R.P.C. 267.

<sup>56</sup> (1957) R.P.C., at pp. 268, 269.

any physical phenomenon in which the effect, be it creation or merely alteration, may be observed: a building (for example), a tract or stratum of land, an explosion, an electrical oscillation. It is, we think, only by understanding the word "product" as covering every end produced, and treating the word "vendible" as pointing only to the requirement of utility in practical affairs, that the language of *Morton J.*'s "rule" may be accepted as wide enough to convey the broad idea which the long line of decisions on the subject has shown to be comprehended by the Statute.

To the decision of *Lloyd-Jacob J.* in the Standard Oil Development Co.'s Case<sup>57</sup> there must be added, as tending against the appellant's case in this appeal, his Lordship's more recent decisions denying patentability in the Virginia-Carolina Chemical Corporation's Application<sup>58</sup> (a process for destroying nematodes in soil) and the American Chemical Paint Co.'s Application<sup>59</sup> (a process for defoliating cotton plants before harvesting in order to save the cotton from contamination).

Notwithstanding the tendency of these decisions, the view which we think is correct in the present case is that the method the subject of the relevant claims has as its end result an artificial effect falling squarely within the true concept of what must be produced by a process if it is to be held patentable. This view is, we think, required by a sound understanding of the lines along which patent law has developed and necessarily must develop in a modern society. The effect produced by the appellant's method exhibits the two essential qualities upon which "product" and "vendible" seem designed to insist. It is a "product" because it consists in an artificially created state of affairs, discernible by observing over a period the growth of weeds and crops respectively on sown land on which the method has been put into practice. And the significance of the product is economic; for it provides a remarkable advantage, indeed to the lay mind a sensational advantage, for one of the most elemental activities by which man has served his material needs, the cultivation of the soil for the production of its fruits. Recognition that the relevance of the process is to this economic activity old as it is, need not be inhibited by any fear of inconsistency with the claim to novelty which the specification plainly makes. The

<sup>57</sup> (1951) 68 R.P.C. 114.

<sup>58</sup> (1958) R.P.C. 35.

<sup>59</sup> (1958) R.P.C. 47.

method cannot be classed as a variant of ancient procedures. It is additional to the cultivation. It achieves a separate result, and the result possesses its own economic utility consisting in an important improvement in the conditions in which the crop is to grow, whereby it is afforded a better opportunity to flourish and yield a good harvest.

There remains for consideration the Commissioner's contention that, even apart from the considerations which have been discussed, agricultural or horticultural processes are, by reason of their nature, outside the limits of patentable inventions. Only in comparatively recent times have statements appeared which explicitly support the contention. In *Re Rau Gesellschaft's Application*,<sup>60</sup> an application for a patent in respect of the production by selective cultivation of lupin seeds having certain characteristics was rejected. *Luxmoore J.* approved a statement by the examiner in terms which seem to run together the question whether such a process can be novel and the question whether it can be a "manufacture". It reads: "Selective breeding of animals and cultivation of plants for the obtainment of improved stocks by the rigorous selection of and breeding from the few individuals which are nearest the ideal has, as is well known, been practised from the earliest times as a part of agricultural or horticultural development, as for example in the production of improved flowers or fruit with desired characteristics in the progeny, and the exercise of art or skill in these directions has not been regarded as coming within the term "manufacture" ". (There had been earlier cases in which applications relating to agriculture had been refused on other grounds; for instance, *Re Hamilton-Adam's Application*,<sup>61</sup> where the process was one for rotation of crops, and the ground taken was that although there was a discovery there was no improvement in the method of carrying out any agricultural operations). It must often happen in a sphere of human endeavour as old as that of primary production that a newly-devised procedure amounts to nothing more than an analogous application of age-old techniques; and where that is the case, want of novelty is a fatal objection to a patent. It may be conceded, moreover, that if there were nothing that could properly be called a "product" of the process, even an ingenious new departure would be outside the limits of patentability. In *Re R.H.F.'s Application*<sup>62</sup> *Morton J.* approved a statement of the examiner which had been made to illustrate that the vendible

<sup>60</sup> (1935) 52 R.P.C. 362.

<sup>61</sup> (1918) 35 R.P.C. 90.

<sup>62</sup> (1944) 61 R.P.C. 49.

product test enunciated in the G.E.C. Case<sup>63</sup> was not definitive. The statement was that fruit and other growing crops, although the assistance of man may be invoked for their planting and cultivation, do not result from a process which is a "manner of manufacture". This may be agreed. However advantageously man may alter the conditions of growth, the fruit is still not produced by his action. But in the Standard Oil Development Co.'s Case,<sup>64</sup> where a patent was sought for a selective herbicidal process, it emerged from the examiner's report that an "established Office practice" had grown up of denying that any agricultural or horticultural process could be a "manner of manufacture". Upon this, *Lloyd-Jacob J.* made no comment, and the office view has since been adhered to: *Re Dow Chemical Co.'s Application*;<sup>65</sup> *Re Canterbury Agricultural College's Application*.<sup>66</sup> The proposition seems an example of a generalization not supported by the reasons leading to the conclusions in the particular instances from which the generalization is drawn. If it means that there is some consideration wrapped up in the label "agricultural or horticultural" which necessarily takes a process outside the area of patentability even though it is a novel process and of sufficient inventiveness, the consideration is not easy to identify. There seems to be here a classic illustration of thinking in terms of the everyday concept of manufacture instead of following the lines along which, over a long period, the courts have given effect to the real purpose and operation of s. 6 of the *Statute of Monopolies*. The cases of *Lenard's Application*<sup>67</sup> (pruning to reduce mortality from disease in clove trees) and *N. V. Philips' Gloeilampenfabrieken Application*<sup>68</sup> (a method for producing a new form of poinsettia) both seem to depend on the view that the process in question was only one for altering the conditions of growth, so that the contemplated end result would not be a result of the process but would be "the inevitable result of that which is inherent in the plant" (as it was expressed in the case last cited<sup>69</sup>). A distinction has necessarily to be drawn between cases of this class and cases of methods employing micro-organisms; see the *Commercial Solvents Corporation v. Synthetic Products Co. Ltd.*<sup>70</sup> and *Adhesives Pty. Ltd. v.*

<sup>63</sup> (1942) 60 R.P.C. 1.

<sup>64</sup> (1951) 68 R.P.C. 114.

<sup>65</sup> (1956) R.P.C. 247.

<sup>66</sup> (1958) R.P.C. 85.

<sup>67</sup> (1954) 71 R.P.C. 190.

<sup>68</sup> (1954) 71 R.P.C. 192.

<sup>69</sup> (1954) 71 R.P.C., at p. 194.

<sup>70</sup> (1926) 43 R.P.C. 185.

Aktieselskabet Dansk Gaerings-Industri; <sup>71</sup> Virginia-Carolina Chemical Corporation's Application,<sup>72</sup> for in the latter class of cases the process is analogous to a chemical process in that, given the micro-organisms and the appropriate conditions, the desired result inevitably follows from the working of the process: see *Re Joseph Szuecs Application*.<sup>73</sup>

We are here concerned with a process producing its effect by means of a chemical reaction, and the ultimate weed-free, or comparatively weed-free condition of the crop-bearing land is properly described as produced by the process. The fact that the relevance of the process is to agricultural or horticultural enterprises does not in itself supply or suggest any consideration not already covered which should weigh against the conclusion that the process is a patentable invention.

For these reasons we allow the appeal.

<sup>71</sup> (1935) 55 C.L.R. 523.

<sup>72</sup> (1958) R.P.C. 35, at p. 37.

<sup>73</sup> (1956) 73 R.P.C. 25.