The Treatment of Living Matter by Australia’s Patents Act 1990
By Tim Doty II

I. Introduction

Australia has developed its patent law by becoming a party of a number of international agreements as a member of the World Intellectual Property Organization (WIPO).¹ WIPO “is an international organization dedicated to helping to ensure that the rights of creators and owners of intellectual property are protected worldwide and that inventors and authors are, thus, recognized and rewarded for their ingenuity.”² WIPO finds its origin in the Paris Convention for the Protection of Industrial Property of 1884 which provides its members with an international framework of intellectual property law upon which its member states may establish their national laws.³ The Strasbourg Agreement Concerning the International Patent Classification grants Australia access to a uniform international classification system for patent documents which facilitates international comparisons and information retrieval.⁴ Australia is also a member of the Patent Cooperation Treaty which permits a person to file a single international application in a member country to have the effect of a national filing for patent protection in each of the member countries the applicant chooses.⁵

In addition to its membership in WIPO, Australia is a member of the World Trade Organization Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS).⁶ TRIPS was created in 1995 to provide its members with minimum standards of intellectual property protection.⁷ As a member of TRIPS, Australia is free to determine the appropriate method of implementation of the TRIPS minimum standards within its legal system.⁸

The following discussion involves the application of the Australian Patents Act 1990, considering amendments up to Act No. 120 of 2004, to living matter such as plants, animals, and micro-organisms.
II. **Patents Act 1990—General Requirements**

The Patents Act grants the patentee the exclusive (monopolistic) rights within the patent area to personally exploit the invention and to authorize another person to exploit the invention during the term of the patent. The exclusive rights are considered personal property, and are assignable and subject to devolution by law.

IP Australia defines a patent as “a right granted for any device, substance, method or process which is new, inventive and useful.” A patent may be granted to a person, without regard to citizenship, who is the inventor, has assignment rights to the patent, derives title from the inventor or the assignee, or is the legal representative of a deceased person having any of the aforementioned characteristics.

The Patents Act allows an inventor to apply for either a standard patent or an innovation patent. The standard patent will carry a term of twenty years from the date of the patent, while an innovation patent expires after an eight year term. Whether a person is applying for a standard patent or an innovation patent, the invention must be “a manner of manufacture within the meaning of section 6 of the Statute of Monopolies,” novel, useful, and not secretly used prior to priority date of the claim. The standard patent varies from the innovative patent in that the standard patent must involve an inventive step when compared to the prior art base, whereas an innovation patent carries a lesser standard, requiring the inventor to display an innovative step when compared to the prior art base.

A. **Manner of Manufacture**

The phrase “manner of manufacture” is interpreted as containing a threshold requirement of “an invention” which would exclude from patentability any claimed process, method, or use which is not, on its face, the proper subject of a letters patent in accordance with traditional
principles of patent law. An invention will often be considered a manner of manufacture if it is judged a proper subject matter for patent protection.

Patentable subject matter will exist where an invention consists “in an artificially created state of affairs,” and produces an economic significance. A guideline for determining whether a method or process will be judged a manner of manufacture is “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.” The terms ‘vendible’ and ‘product’ are given a broad interpretation. A product may be considered vendible if the significance of the product is of economic value to the community.

The product itself may be either a tangible article, or “it may be any physical phenomenon in which the end result of the method may be observed.” Thus, discoveries, mere ideas and scientific theories, and mathematical algorithms are not patentable inventions unless the invention relates to technical or practical matter (not an intellectual or academic matter). For example, the discovery of a chemical substance or micro-organism in nature will not be considered patentable subject matter unless the material can be used in practical application with claims distinguishing the material from those currently existing in nature, or the material can be used for making a particular article or in a particular process.

B. Novelty

The first requirement that an invention is a manner of manufacture incorporates a requisite aspect of newness of the alleged invention which is distinguished from the novelty requirement. In order to determine the novelty of the invention, the invention will be compared to the prior art base through any prior art information made publicly available either
through a single documentation\textsuperscript{38} or through doing a single act.\textsuperscript{39} Multiple documents or acts can be combined for comparison to the invention if a person skilled in the relevant art would view the relationship between the documents or acts as a single source of information.\textsuperscript{40} The requirement of novelty will be satisfied if, upon comparison of the invention with the prior art base, the invention remains novel.\textsuperscript{41}

For a prior documentation to strip the invention of its novelty, “the prior inventor must be clearly shown to have planted his flag at the precise destination before the patentee.”\textsuperscript{42} That is, a prior publication will destroy novelty only if it gives “a direction or make[s] a recommendation which will result, if the skilled reader follows it, in the claimed invention.”\textsuperscript{43} The Australian Patent Office has indicated in its decisions that they will use the “reverse infringement test” to determine whether an invention lacks novelty.\textsuperscript{44} The “reverse infringement test” will ask “whether the alleged [lack of novelty] would, if the patent were valid, constitute an infringement [on the prior art information].”\textsuperscript{45} Infringement occurs where “each and every one of the essential features of that claim have been taken;”\textsuperscript{46} therefore, if the prior art information fails to disclose even a single essential element of the claim, the invention will remain novel.\textsuperscript{47}

C. Useful

The invention must have a demonstrated use to be patentable.\textsuperscript{48} The demonstrated use, to which the invention is to be put, must be an actual use, not merely speculation of the future usefulness of the invention.\textsuperscript{49}

An invention is useful if it fulfills its promise.\textsuperscript{50} An applicant must claim that the invention is useful, but the applicant is not required to specify a specific use of the invention within the patent application.\textsuperscript{51} However, if the use of the invention is not obvious, the invention’s specification must indicate the invention’s method of use because the application must be made
in respect to a manner of manufacture. Where a use is not implicitly or explicitly described in the specification, the claims may be viewed as a mere scientific curiosity, discovery, or idea.

D. Not Secretly Used

The Patents Act establishes that any use of an invention, other than a use for trade or commercial purposes, prior to the priority date of the claim, by the patentee, nominated person, or predecessor in title to the invention will not be a secret use. The Act provides that the aforementioned parties may use an invention for reasonable trial and experimental purposes or in the course of a confidential disclosure of the invention without stripping the invention of its patentability. Additionally, any Commonwealth, State, or Territory may use an invention without affecting its patentability after disclosure to the Commonwealth, State or Territory by the patentee, nominated person, or predecessor in title to the invention.

E. Inventive Step

Generally, standard patents will be granted where the invention presents “a new idea that provides a practical solution to a technical problem.” Obtaining a grant of a standard patent is much more difficult than that of an innovation patent because the standard patent must contain an inventive step when compared to the prior art base. An inventive step will be shown through measurement of the invention against “the combined teaching of multiple prior references and must differ in ways that would not be obvious to engineers or scientists in the field.” An invention will be considered to contain an inventive step when compared to the prior art base unless, when taking into account common general knowledge and prior art information within the patent area before the priority date, the invention was obvious to those persons skilled in the relevant art.
F. Innovative Step

Innovation patents can be held in conjunction with standard patents, and once the patent is certified, it should be equally effective in Australian courts as a standard patent. An innovative step is established by a comparison of the invention to the prior art base. The invention will contain an innovative step if the invention varies from prior art information made publicly available through documentation or act(s) “in ways that make a substantial contribution to the working of the invention.” The substantial contribution has been viewed as merely showing a “small but meaningful change from an earlier patent.” Because an innovative step is not as rigorous of a standard as that of an inventive step, an innovative patent can be obtained more expediently than a standard patent.

III. Patents Act 1990 – Specific Requirements

A. No Innovation Patents for Plants, Animals, and Biological Processes

Inventors of plants, animals, and the biological processes for the generation of plants and animals are eligible for the protections of a standard patent; however, the Patents Act explicitly disallows the granting of innovation patents for such living matter. Yet, an inventor may apply for an innovation patent for a process which utilizes plants or animals, but does not result in the generation of plants or animals.

Protection for plant varieties through plant breeder’s rights is available as an alternative or in addition to the standard patent. If the inventor of a plant variety is seeking protection of the variety but is unable to qualify for the standard patent because of, for example, a lack of inventive step, her only alternative is to apply for plant breeder’s rights in the variety. The rights granted to the inventor (breeder) through the Plant Breeder’s Rights Act of 1994 may be
considered relatively equivalent to an innovation patent by permitting the inventor similar exclusive rights to exploit the variety for a specified period of time.72

B. Complete Specification

In general, all patent applications must include a complete specification which fully describes the invention and specifies the best known method of performing the invention.73 The inventor must provide information which is sufficiently clear so that the specialist performing the examination does not have to rely on her own inventive methods as a remedy to discover the conditions necessary for the invention to work.74 A complete specification of the invention for the purposes of a standard patent also must “end with a claim75 or claims defining the invention.”76 An innovation patent application must contain a complete specification including “at least one and no more than five claims.”77

C. Description Requirements78

The specification of the plant variety must include a full description of the parents of the variety (if not publicly available), a full description of the method of preparation of the plant, and photographs79 of the variety must be provided.80 The description must disclose all breeding methods and crosses used to produce the inventive variety when standard breeding techniques are used to produce a plant variety.81 Because parents of a plant variety must be disclosed when making an application for a standard patent, inventors may be hesitant to seek a patent for the variety because this may require the disclosure of certain trade secrets.82

When an invention is a complete plant, the entire organism must be fully described with particular emphasis on characteristics83 which significantly differ from all known and related plants.84 All descriptions included in an application for a patent on a plant must include a detailed taxonomic description of the plant to avoid confusion within the specification.85
Inventors seeking a patent for a micro-organisms, hybridoma, enzyme or transgenic material must include a full description of the material, the material’s use, and the best known method of performing the invention within the complete specification. The applicant must include all known morphological, biochemical and taxonomic characteristics of the micro-organism within the description.

In regards to all types of living matter, the invention must not only be described in a fashion that allows a specialist in the field to accurately identify the invention, but the description must be sufficient to enable the specialist to repeat the invention. The purpose of requiring a detailed description of an invention is to ensure that others are able to create the invention after the patent has expired. Because processes regarding living matter are often not 100% repeatable, each invention will have its own standard of repeatability. The repeatability issue will be determined by assessing “whether the result can be reproduced to a practical level acceptable to the person skilled in that particular technology.”

D. Deposit Requirements For Micro-organisms

An inventor of a micro-organism or the use of a micro-organism must comply with the deposit requirements of the Patents Act in order to fully meet the description requirements of a complete specification. The micro-organism must be deposited at a prescribed depositary institution on or before the date the specification was filed. In addition, all known characteristics of the micro-organism and the location of the deposit must be included in the specification. Finally, the inventor must insure that samples of the micro-organism are available at a prescribed depositary institution.

In accordance with the Budapest Treaty, Australia allows the deposit of micro-organisms in any international depositary authority (IDA). A deposit will be recognized by a member
country irrespective of the location of the IDA. The deposit assures access to the microorganism for testing and experimentation during the life of the patent and for commercial use after patent expiration. In addition, the deposit requirements have the advantage of relaxing the repeatability requirements because the skilled person will have access to the microorganism.

E. Human Beings

Standard patents may be obtained for inventions of biological material provided that the material is, “isolated from its natural environment, or has been synthetically or recombinantly produced.” The Patents Act has explicitly disallowed the patentability of human beings and the biological processes for their generation. However, Australian patent law has allowed for patents pertaining to genetic manipulation of human genes that have been “extracted from the body by a process of isolation and purification,” while disallowing patents utilizing genes in their natural state.

IV. Conclusion

The Patents Act enables an inventor to apply for either a standard patent or an innovation patent. The standard patent is available for inventors of all living matter, excluding human beings, and the processes for their generation. The innovation patent is only available for living matter such as micro-organisms and related biological material while excluding plants, animals, and biological processes for their generation.

1 IPAustralia, Resources: International Agreements, at http://www.ipaustralia.gov.au/resources/international_agreements.shtml (Australia has been a member of WIPO since August 1972.) (last visited Apr. 7, 2005).
3 IPAustralia, Resources: International Agreements, at http://www.ipaustralia.gov.au/resources/international_agreements.shtml (Australia has been a member of the Paris Convention since October 1925. “[A] key provision [of] the convention requires each member country to accord
nationals of other member countries the same rights for their industrial property as it accords to its own nationals.”)
(last visited April 7, 2005).

4 Id.
5 Id. (“The international application is subjected to a mandatory international search and may undergo an international preliminary examination before each designated country determines under its national laws whether to grant or refuse a patent.”)
6 Id.
7 Id.
8 Id.
9 “patentee means the person for the time being entered in the Register as the grantee or proprietor of a patent.” Patents Act 1990, Schedule 1 (1990) (amended 2004).
10 “patent area means:
(a) Australia; and
(b) the Australian continental shelf; and
(c) the waters above the Australian continental shelf; and
(d) the airspace above Australia and the Australian continental shelf.” Id.
11 “invention means any manner of new manufacture the subject of letters patent and grant of privilege within section 6 of the Statute of Monopolies, and includes an alleged invention.” Id.
12 Id., § 13(1).
13 “Assignment of patent
(1) An assignment of a patent must be in writing signed by or on behalf of the assignor and assignee.
(2) A patent may be assigned for a place in, or part of, the patent area.” Id. § 14.
14 Id. § 14(2).
18 “Application for patent
(1) A person may apply for a patent for an invention by filing, in accordance with the regulations, a patent request and such other documents as are prescribed.
(2) An application may be a provisional application or a complete application.
(3) A patent request in relation to a provisional application must be in the approved form and accompanied by a provisional specification.
(4) A patent request in relation to a complete application must be in the approved form and accompanied by a complete specification.
(5) In this section:
Person includes a body of persons, whether incorporated or not.” Id. § 29.
19 Id. § 14(3) & Schedule 1.
20 Id. §§ 67 & 68.
21 “2 or more persons (within the meaning of section 29 [see endnote 11]) may make a joint patent application.” Id. § 31.
22 “Section 6 of the Statute of Monopolies (1623) says:
‘Provided also (and be it declared and enacted) that any declaration before-mentioned shall not extend to any Letters Patent and grants of privilege for the term of 14 years or under, hereafter to be made, of the sole working or making of any manner of new manufacture within this realm, to the true and first inventor and inventors of such manufactures which others at the time of making such Letters Patent and grant shall not use, so as also they be not contrary to the Law or mischievous to the State, by raising prices of commodities at home, or hurt of trade, or generally inconvenient.”
23 “The priority date of a claim is:
(a) the date of filing of the specification; or
(b) where the regulations provide for the determination of a different date as the priority date—the date determined under the regulations.” Patents Act 1990, § 43(2).

24 Id. § 18.

25 “prior art base means:

(a) in relation to deciding whether an invention does or does not involve an inventive step or an innovative step:
   (i) information in a document that is publicly available, whether in or out of the patent area; and
   (ii) information made publicly available through doing an act, whether in or out of the patent area.

(b) in relation to deciding whether an invention is or is not novel:
   (i) information of a kind mentioned in paragraph (a); and
   (ii) information contained in a published specification filed in respect of a complete application where:
      (A) if the information is, or were to be, the subject of a claim of the specification, the claim has or would have, a priority date earlier than that of the claim under consideration; and
      (B) the specification was published after the priority date of the claim under consideration; and
   (C) the information was contained in the specification on its filing date and when it was published.”

Id. at Schedule 1.


When considering the traditional principles of patent law, the court in NV Phillips Gloeilampenfabrieken cited three principles: 1) a claim which is “nothing but a claim for a new use of an old substance” is outside the scope of an invention, 2) the term “alleged invention” is applied to the epithet ‘new’ in the limb of the definition of invention in Schedule 1 of the Patents Act which reads “any manner of new manufacture”, and 3) if it is apparent on the face of the patent application that the claim did not contain any manner of new manufacture, the application may be denied because the specification would itself disclose the absence of “an alleged invention.” N.V. Philips Gloeilampenfabrieken v. Mirabella Int’l Pty Ltd (1995) 183 C.L.R. 655, 661-662 (This was an action by the appellant for infringement of a patent for a type of lamp. The respondent denied the infringement and challenged the validity of the patent asking for revocation. The subject of the patent was found not to be an invention or manner of new manufacture.).


29 This is neither an exclusive nor conclusive test. Id. at 255.

30 APO Manual, supra note 26, § 8.2.2 (See discussion on G.E.C’s Application).

31 See National Research Development Corporation, 102 C.L.R. 252.

32 Id.

33 Id. § 8.2.5.1.

34 Id. §§ 8.2.5.3 & 8.2.5.4.


36 “prior art information means:

(a) for the purposes of subsection 7(1) [regarding novelty]—information that is part of the prior art base in relation to deciding whether an invention is or is not novel; and …” Patents Act 1990, at Schedule 1.

37 “document includes:

(a) any paper or other material on which there is writing;
(b) any paper or other material on which there are marks, figures, symbols or perforations having a meaning for persons qualified to interpret them; and
(c) any article or material from which sounds, images or writings are capable of being reproduced with or without the aid of any other article or device.” Acts Interpretation Act 1901, §25.

38 Id. § 7(1).

39 Id. § 7(1)(b).

40 Id. § 7(1).


47 APO Manual, supra note 26, § 3.3.1.


49 Id.

50 APO Manual, supra note 26, § 8.4.1.

51 Patents Act 1990, § 18(1)(c).

52 APO Manual, supra note 26, § 8.4.1.

53 Id.


55 Id.

56 Id.


58 Steven J. Frank & Wayne A. Slater, Patents Lite: Aussies pioneer a cheap and easy way to protect inventions, IEEE Spectrum, November 2004, at 94-95 (supra, Frank).

59 Id. at 95 (emphasis added).

60 “prior art information means:…
   (b) for the purposes of subsection 7(3) [regarding inventive step]—information that is part of the prior art base in relation to deciding whether an invention does or does not involve an inventive step; and…” Patents Act 1990, Schedule 1.

61 Id. § 7(2).

62 Provided the claims differ in scope. Frank, supra note 58, at 95.

63 Id.

64 “prior art information means:…
   (c) for the purposes of subsection 7(5) [regarding innovative step]—information that is part of the prior art base in relation to deciding whether an invention does or does not involve an innovative step.” Patents Act 1990, Schedule 1.

65 Id. § 7(4) & (5) (emphasis added). To a person skilled in the relevant art, in the light of the common general knowledge as it existed in the patent area before the priority date of the relevant claim.

66 Frank, supra note 58, at 95.

67 Id.

68 Patents Act 1990, § 18(3). (“This exclusion does not apply if the invention is a microbiological process or a product of such a process.” Advisory Council on Intellectual Property, Reviews: Consideration of excluding plant and animal subject matter from the innovation patent, at http://www.acip.gov.au/reviews.htm.)


71 See generally Tim Doty II, Plant Breeder’s Rights in Australia.

72 Id.


74 Id. (See Patents Act 1990, § 40).

75 “claim means:
   (a) when used as a noun in relation to a patent—a claim (including a dependent claim) of the specification relating to the complete application on which the patent was granted; and
   (b) when used as a noun otherwise than in relation to a patent—a claim (including a dependent claim) of a complete specification; and
when used as a verb—to claim in a claim (including a dependent claim) of a complete specification.”


70 Id. § 40(2)(b). (The standard patent specification may contain an unlimited number of claims.)

71 Id. § 40(2)(c).

72 While further discussion will focus on plants, Australia also grants patents on animals and processes for creating animals. Australia has generally placed similar description requirements on patents relating to animals as those placed on patents relating to plants. See e.g. Transgenic Animals, Patent #772439 (Grantee, Gala Design, Inc.) (1998). (The patent grant was for an invention which provides improved methods and compositions for the generation of transgenic non-human animals. The methods of the invention provide an increased efficiency of production of transgenic animals with a reduced rate of generating animals which are mosaic for the presence of the transgene.; Transgenic “knock out” mice expressing a human apolipoprotein_E, Patent #720830 (Grantee, Duke University) (1995). (The patent grant was for a transgenic nonhuman animal expressing different forms of the Apo E isoform. The invention allows, among other things, the study of the effects of different combinations of human Apo E isoform expression on normal brain biology, development, function, ageing and injury.; Transgenic animal model for alzheimer’s disease, Patent # 718473 (Grantee, Novartis AG) (1997). (The patent grant was for transgenic non-human animals [mice] which exhibit features of alzheimer’s disease pathology and behavioral changes characteristic of alzheimer’s disease.)

73 “These photographs should capture each of the major characteristics used for full description.” APO Manual, supra note 26, § 6.2.2.3.


81 APO Manual, supra note 26, § 6.2.3.

82 For example, if an inventor may not want to disclose the parents of a hybrid plant invention because the parents are trade secrets of the inventor.

83 “Characteristics to be included in the description, as appropriate are:
   a) leaf characteristics (e.g. shape and length);
   b) flower characteristics (e.g. [color], size, number of petals, presence or absence of sepal, pollen morphology, carpal and stamen number, etc.)
   c) stem characteristics (e.g. branching habits);
   d) root characteristics;
   e) fruit characteristics;
   f) herbicide or pest resistance (if any); and
   g) scientific testing characteristics (e.g. isozyme analysis, DNA fingerprinting, etc.), if available.”

APO Manual, supra note 26, § 6.2.2.2.

84 Id. § 6.2.1.3. (This provision also applies to inventions resulting in complete animals.)


87 Id.


89 Id.

90 Id.

91 Id.

92 Patents Act 1990, § 41(1).

93 Id. § 6(a).

94 Id. § 6(b), (c).

95 Id. § 6(d).

96 The full name is Budapest Treaty on the International Recognition of the Deposit of Microorganisms for the Purposes of Patent Procedure.

98 Id.

99 Id.


101 Id.

102 Patents Act 1990, § 18(2).