

PATENTS ACT 1977

IN THE MATTER OF patent application
GB 9700759.5 in the name of Carbury
Herne Limited

and

IN THE MATTER OF referrals under
sections 8 and 13 by James Richard
Jackson

INTERIM DECISION

1. Patent Application GB9700759.5 (hereafter "the UK application") was filed in the name of Carbury Herne Limited (hereafter "the opponent" or "CHL") on 15 January 1997. A statement of inventorship was not filed with the UK application and has not been at any time since, although in these proceedings the opponent asserts that the co-inventors are David John Hardman (former managing director of CHL), Professor James Howard Slater (former director and chairman of CHL), and Mr Adam G Reid and Dr William Kenneth Lang (former employees of CHL).
2. A reference as to entitlement under section 8(1)(a) and an application to be mentioned as inventor under section 13(1) were filed on 15 September 1997 by Mr James Jackson (hereafter "Jackson" or "the referrer"). A slightly amended statement was filed on 19 September.
3. CHL went into receivership on 18 November 1997. Following the allowance of an extension of the time to do so, a counterstatement was filed on 23 December 1997. A slightly amended counterstatement was filed on 5 June 1998.
4. No request for search was filed within the time permitted and in accordance with normal Patent Office procedures then in force, the UK application was terminated on 13 March 1998 (since that time, practice has changed and the Office no longer terminates any case on which a reference under s.8 has been filed until the question has been resolved).

5. An Official letter dated 26 March 1998 informed the referrer of the termination of the UK application and invited the referrer to consider what alternative remedies he might like to seek. The letter also made the point that if foreign applications were filed claiming priority then remedies under s.12 might be available. In a fax dated 27 March 1997, the referrer said he would be making an application under s.12 in respect of a PCT application which he believed had been filed in January 1998. In fact, a PCT application (PCT/GB98/00136) designating *inter alia* EP(UK) was filed on 15 January 1998 claiming priority from the present application. It was subsequently published under No. WO98/32018 and has just entered the regional phase in the EPO following Chapter II examination.

6. In a fax dated 11 May 1998 the referrer said that he would be commencing s.12 proceedings "next week". However no such proceedings were ever started.

7. Evidence rounds proceeded in a not entirely smooth manner. There were issues about confidentiality which were resolved. Disclosure of a laboratory notebook was granted in a decision taken on the papers dated 15 September 1999. There was some dispute over interpretation of that decision, but the whole of the notebook has now been disclosed to Jackson and filed as evidence by him.

8. The written evidence as eventually filed comprises for the referrer (a) an affidavit of James Jackson dated 26 November 1998 and 17 exhibits; (b) a declaration of James Jackson dated 22 February 1999, one enclosure and one exhibit; and (c) an affidavit of James Jackson dated 25 November 1999 and 48 exhibits, including a sworn statement of Dr Richard Palmer dated 26 October 1999; and for the opponent (d) an affidavit of David John Hardman dated 11 May 1999 and 3 exhibits (the third of which comprises 19 discrete documents).

9. The comptroller is invited to determine whether Mr James Jackson -
(I) should be named as inventor;
(ii) should be made a joint applicant;
(iii) is entitled to sole rights in respect to certain of the claims and joint rights in respect of certain other claims.

10. In summary, the relief sought is as follows:
(a) certificate of the comptroller under s.13 that Jackson should be named as an inventor;
(b) an order that the application should proceed with Jackson as joint applicant; and

- (c) an order that any foreign applications or additional [UK] applications based on Jackson's work and ideas should proceed with Jackson as a joint applicant;

Or alternatively

- (d) all rights in diagnostic and analytical testing applications of the paper treatments described in the application be assigned to Jackson, and that he be invited to submit his own application covering the use of treatments and treated papers and other materials in the creation of diagnostic and analytical devices;
- (e) that any treatment processes using the concept of paper or similar material having a water impermeable coating and wettable internal region which can be wetted by an untreated or cut region should be made the sole subject of the application and Jackson should be made a joint applicant;
- (f) CHL should be invited to make a separate application on other subject-matter which does not infringe the rights of Jackson as referred to above;
- (g) priority dates of new applications should be same as that of the present application; and
- (h) costs and further relief as the comptroller deems appropriate.

11. The parties came before me at a hearing held on 17 February 2000. Mr Jackson represented himself, and CHL were represented by Professor Slater, who, as mentioned above, was the managing director of CHL prior to its liquidation and is one of the nominated inventors.

12. During the course of the hearing Dr Hardman was cross-examined on his written testimony by Mr Jackson and re-examined by Professor Slater. I must say that in each case this was carried out in a thoroughly professional manner

13. *The invention* is in the field of devices for conducting biochemical assays (eg for diagnostic purposes) which are suitable for use by typically unqualified persons in environments such as the home or surgery. These devices are referred to by the colloquial term of "dipsticks" because they work by being dipped into the sample to be tested. A key feature of the described embodiments relates to the use of paper coated with a liquid-impervious polymer. The disposition of the polymer defines one or more encapsulated regions (channels) capable of chromatographically transporting a liquid past test reagents immobilised at certain points. An advantage of this arrangement is that ingress of the liquid to be tested can be restricted to a controlled point by providing a single uncoated area of the surface. This is important as it enables the entire paper to be immersed in the sample.

14. In entitlement disputes in respect of ungranted applications, the comptroller is not limited in construing the invention by any claims filed; rather the contents of the application as a whole need to be considered (with the exception of subject-matter which is admitted as not new). However the claims filed do give a guide as to what the original applicant considered to be inventive, and for completeness I reproduce the main claims of the UK application in suit below. I should comment that although the application as such has not been published under the Act, its contents are nevertheless in the public domain by virtue of forming the basis for the priority claim on the related application under the PCT, and CHL have agreed that in the circumstances I may refer to it freely:

1. An assay device comprising:

(a) a substrate comprising:

(I) a porous material capable of chromatographically transporting a liquid; and

(ii) one or more test reagents for an assay provided on the porous material; and

(b) a transparent water-impermeable coating polymer attached to the porous material so as to define a continuous bibulous compartment.

4. A device according to anyone of the preceding claims wherein a doping polymer impermeable to the liquid which the porous material is capable of transporting, is incorporated into a part of the porous material so as to define a channel in the porous material, the or each test reagent being provided on the porous material in the channel defined therein.

11. A device according to anyone of the preceding claims, wherein the test reagents comprise at least one specific binding reagent for a predetermined analyte whose presence is suspected in a sample to be assayed.

17. A device according to anyone of claims 14 to 16 suitable for use in a quantitative or semi-quantitative assay or for use in an assay of a liquid sample for a plurality of predetermined analytes, in which the bibulous compartment comprises a central body and a plurality of channels connected thereto.

20. A method of assaying a liquid sample for the presence or absence of a predetermined analyte, which method comprises:

(a) contacting the liquid sample with the bibulous compartment of a device according to anyone of the preceding claims;

(b) allowing the porous material to transport chromatographically the liquid sample; and

(c) determining the presence of the predetermined analyte in the liquid sample.

21. A test-kit containing a device according to anyone of claims 1 to 19.

22. *A process for preparing a device according to claim 1, which process comprises:*
(a) providing a porous material capable of chromatographically transporting a liquid;
(b) providing one or more test reagents for an assay on the porous material; and
(c) attaching a transparent, water-impermeable coating polymer to the thus-obtained material by contacting the material with a gel-accelerating agent and then contacting the material with a solution or suspension of the coating polymer.

23. *A process according to claim 22 further comprising the additional step, between steps (a) and (b), of applying a doping polymer impermeable to the liquid which the porous material is capable of transporting, to part of the porous material, so as to define a channel in the porous material, the or each test reagent being provided on the porous support in step (b) in the channel defined therein.*

27. *Use of a polymer impermeable to a liquid, for controlling the flow of the liquid through a porous material which is capable of chromatographically transporting the liquid.*

28. *An assay device substantially as hereinbefore described in the preceding description and drawings.*

Summary of agreed facts and main points in dispute

15. Carbury Herne Limited was established in 1991 in Canterbury as a company offering consultancy, research & development and other services on contract. One of its spheres of interest was the use of biotechnology principles to reduce pollution in the paper industry and an important client in relation to this work was Hercules Inc., a US corporation. CHL built up expertise in the field of paper chemistry and in the context of their work for Hercules Inc. developed a technique they called "biobridging" whereby paper is "sized" (ie made waterproof) by treating with compositions containing enzymes which alter the properties of the fibres which make up the paper. Some of this work involved attempts to size the surface layers of paper sheets. In May 1995 certain experiments were carried out in which samples were dipped or sprayed and their wet strengths tested. These experiments have assumed a central importance in these proceedings and I shall return to them later.

16. The work for Hercules Inc. led to two patent applications under the PCT (published as WO 9707203 and WO 97/07282). These patents both claim priority from a prior unpublished UK application not at issue in this case, No. GB9516766.4 (filed 16 August 1995). The published PCT applications describe paper which has been sized using compositions involving

natural polymers, and mention possible use of the technology for producing a "*sandwich structure in which a layer of paper having poor wet strength properties but good liquid absorption properties, is sandwiched between two layers of paper having good wet strength properties*". Such a structure is stated to be "*capable of transporting liquids through its middle layer by capillary action and is particularly useful in the manufacture of dip-stick type diagnostic assays*." The polymers used for sizing in the Hercules patents are however not the same as the polymers as used in the UK application in suit.

17. Meanwhile, Jackson had also been involved in consultancy work. He and Slater first came into contact in early 1992 in connection with a contract (unrelated to the present invention) on which Jackson was working. Jackson established a firm "True Test Diagnostics" and was at that time active in the field of diagnostic testing. He set up his own laboratory facility in Walton on Thames in October 1995 which he shared with a Dr Richard Palmer. This was purely an arrangement of mutual convenience and there was no technical collaboration between the two on the work they were undertaking.

18. There is dispute over the point at which Jackson and Slater re-established contact and made the first moves towards the relationship which is the subject of these proceedings. Jackson's position is that he telephoned Slater on 23rd June 1995 and during an approximately 45 minute telephone conversation Slater discussed his involvement in CHL and spoke of that company's interest in paper technology. Jackson says that he in turn spoke of his own interest in diagnostics and followed this contact up by a fax on 27th June 1995.

19. CHL's initial position was to deny that any such matters were discussed at that time. They maintain that the first substantive contact came in December 1995 when Slater called Jackson in connection with CHL's desire to have a commercial partner to take forward the coated dipstick technology which had already been invented by their personnel. It is agreed between the parties that some telephone contact did take place in December 1995, although it is disputed which of the parties initiated it.

20. It is also agreed that a meeting took place between Jackson and CHL in January 1996, although this time the parties dispute the location. Around this time, CHL was taking forward work on the dipstick concept. A subsequent fax from Slater at CHL to Jackson dated 4 March 1996 says that in connection with the possible application to diagnostic test kits based on paper strips, CHL "*can do what we want which is to provide a coating which is impermeable to water and therefore contains within the paper strip any materials which are drawn up the strip by capillarity*". The

fax goes on to say that the work done so far was regarded as preliminary and needs system and process optimisation, and invites Jackson to be associated with this development in so far as it relates to diagnostic kits. CHL also say that they are developing some of the ideas for use in the art world for the restoration, preservation, repair and production of specialist papers and they sought to reserve this work, which they regarded as distinct from the diagnostic kits, exclusively to themselves. This fax refers to developing "*a complete patent position*" and clearly envisages that Jackson would be associated with this.

21. CHL personnel, including at least Hardman and Slater, visited Jackson's laboratory in April 1996. It is not clear what was discussed in detail at that meeting or what was demonstrated. A letter dated 1 July 1996 from CHL to Jackson addressed to True Test Diagnostics at Walton, summarises the results of a meeting said to have taken place the previous week at which a proposal had been discussed to set up a jointly owned company between Jackson and CHL. The letter includes the following paragraph:

"This venture will be owned on a half shared basis (50% JJ and 50% CHL) You [ie Jackson] will include all the ideas you have and assign to the new venture any IPR which is relevant to the technical development programme. This will include all the ideas currently held under the TruTest Diagnostics Ltd venture, and development of the analytical aspects of the kits will take place in the new company. For our part we will assign CHL's interests in the paper coating and matrix-doping ideas for the development of new diagnostic kit formats, including the possibilities of channelling and focussing diagnostic reagents on paper strips. CHL will provide a resource to undertake the development work necessary with respect to the various paper technologies on a sub-contract basis from the new company."

The letter ends with the paragraph:

"No doubt there will be many other issues, but this provides a framework for future discussions and decisions. I hope you feel this provides a suitable basis on which to proceed. We look forward to learning about the prospective dates for our joint visits to potential funders of the new company."

22. Over the next few months Jackson visited CHL's laboratories on a number of occasions. It is broadly agreed between the parties that during this time, Jackson spoke to CHL's technical personnel, gave advice, and recommended and/or supplied reagents for use in developing the diagnostic assay device.

23. With a view to establishing the joint venture, a company was set up on 29 August 1996 with Jackson named as a director. A note summarising a meeting held on 13 September records that Jackson, Slater and Hardman reached agreement on a number of points relating to the structure and operation of the company. Part of this agreement was that Jackson would dissolve True Test Diagnostics and direct all his efforts toward the development of the new company. Jackson closed the laboratory in Walton and transferred some equipment and reagents to CHL in Canterbury.

24. CHL subsequently took what has been described as a "change of direction" apparently on receipt of advice about securing sources of funding. In October 1996 CHL indicated that rather than going along the joint venture route they would prefer for CHL to control and exploit the technology. On this basis they offered Jackson a share in CHL. Jackson did not accept this offer.

25. From that point, relations between Jackson and CHL began to deteriorate. A letter dated 8 November 1996 from CHL proposed an alternative arrangement whereby Jackson would become an employee of CHL with 10% shareholding (before dilution consequent upon third party investments). This letter refers to a collaboration between Jackson and Slater on the development of the CHL diagnostic programme.

26. Jackson also refused this offer. A meeting subsequently took place between Jackson and Slater later in November 1996 at Leigh Delamere services on the M4 motorway, at which a further proposal was discussed. This would have involved Jackson taking a shareholding in the range 15-25%, the actual figure depending on the extent to which diagnostics might come to dominate or become CHL's only activity. Still Jackson did not agree.

27. On 14 December 1996, Slater wrote to Jackson with an alternative proposal according to which Jackson would have no shareholding in CHL, but would be paid a retainer on six-month renewable contract basis with a share of profits generated. Jackson replied on 16 December rejecting this offer but attempting to go back to the offer made at the Leigh Delamere meeting. Slater replied the same day rejecting Jackson's proposal and stating that from CHL's perspective the only way forward would be on the basis of the 14 December offer.

28. Although Jackson had been involved in preparation of the UK application in suit, it was actually filed without his foreknowledge on 15 January 1997.

29. There was further correspondence which resulted in no agreement between the parties,

and relations were unilaterally terminated by a letter from Slater to Jackson on 1 February 1997.

30. The basis of Jackson's case, as set out in his statement, is that he conceived the ideas of:

(a) treating paper so that it comprises a water-impermeable external surface together with a wettable continuous internal region;

(b) allowing access by liquids in contact with the external surface to the wettable interior region either by providing untreated (hence wettable) regions on the surface or by cutting the paper so as to open the wettable internal region of the paper to the exterior;

(c) using such treated paper to manufacture diagnostic devices;

(d) conjugating substances to cellulase or to isolated cellulase binding sites as a means of subsequently binding such substances tightly to paper and other cellulosic materials [although it was subsequently found that this aspect had been anticipated by another group unrelated to either party];

and disclosed them to CHL, with whom he subsequently collaborated in the development of processes, product concepts and prototypes. Jackson contends that there was an agreement that his rights would be realised in a substantial share of the equity of CHL and a senior executive role in the business. However following the filing of the UK application in the name of CHL alone, the company severed all links with Jackson and refused to participate in any further discussion.

31. The patentee's position can be summarised as follows:

- CHL conceived the idea before they had any contact with Jackson;
- CHL first approached Jackson because they were looking for someone who knew the market;
- discussions between CHL and Jackson were about a commercial arrangement and were terminated upon failure to reach such an arrangement; the timing had nothing to do with the filing of the patent.

The Law

The right to apply for and be granted a patent is governed by section 7 of the Act. Sub-sections 2 to 4 of that section read:

(2) A patent for an invention may be granted -

(a) primarily to the inventor or joint inventors;

(b) In preference to the foregoing, to any person or persons who, by virtue of any enactment or rule of law, or any foreign law or treaty or international convention, or by virtue of an enforceable term of any agreement entered into with the inventor before the making of the invention, was or were at the time of the making of the invention entitled to the whole of the property in it (other than equitable interests) in the United Kingdom;

(c) in any event, to the successor or successors in title of any person or persons mentioned in paragraph (a) or (b) above or any person so mentioned and the successor or successors in title of another person so mentioned; and to no other person.

(3) In this Act "inventor" in relation to an invention means the actual deviser of the invention and "joint inventor" shall be construed accordingly.

(4) Except so far as the contrary is established, a person who makes an application for a patent shall be taken to be the person who is entitled under subsection (2) above to be granted a patent and two or more persons who make such an application jointly shall be taken to be the persons so entitled.

32. Section 7 sub-section (2) thus makes it clear that an inventor named under a patent is presumed to have the entitlement in it unless there is a overriding enactment, law or agreement, and sub-section (4) establishes a presumption that a person who applies for a patent is the person who is entitled so to do. The onus is thus on the referrer to establish by means of evidence his entitlement. The required standard of proof is the balance of probabilities.

33. Questions about entitlement to patents under the 1977 Act which have not yet been granted may be referred to the comptroller under section 8.

Section 8(1)

At any time before a patent has been granted for an invention (whether or not an application has been made for it) -

(a) any person may refer to the comptroller the question whether he is entitled to be granted (alone or with any other persons) a patent for that invention or has or would have any right in or under any patent so granted or any application for such a patent; or

(b) any of two or more co-proprietors of an application for a patent for that invention may so refer the question whether

*any right in or under the application should be transferred
or granted to any other person;
and the comptroller shall determine the question and may make such order as he thinks fit to give
effect to the determination.*

34. Since a reference under s.8 may be made before an application for a patent has been made, or subsequent to the making of the application but before claims have been filed, the definition of an "invention" as that specified in a claim is not always applicable. I am aware that the hearing officer in *Drillcon Industries Ltd (Great Britain)'s Application* (SRIS O/67/85) considered that for this reason "invention" is used in s.8 in its broadest sense as meaning that which has been invented, without regard to any particular form of claim. I am further not constrained to consider whether a valid patent will arise out of the application and if so who is entitled to it; on the contrary, there is no provision for questioning validity or patentability in s.8(1) proceedings.

35. Section 36(1) provides

Where a patent is granted to two or more persons, each of them shall, subject to any agreement to the contrary, be entitled to an equal undivided share in the patent.

Although the current proceedings relate to an invention which is not the subject of a granted patent, I interpret this as meaning that in the event of a finding that the referrer is entitled to a joint interest with the opponent in any invention present, that shall be an equal share unless there is an agreement between the parties which provides otherwise.

36. As regards the remedies available, ante-dating of priority dates is not allowed. Moreover, s.8(3)(c) rules out the filing of a new application in cases where the application in suit is withdrawn before publication, as here. The hearing officer in his decision in *Amateur Athletics Association's application* [1989] RPC 717 held that it might be possible to allow a terminated application to be resurrected and proceed in the name of a successful applicant, but even if possible, this remedy would only be appropriate if the applicant were entitled to the whole of the matter in the disputed application, which is not pleaded in this case. Thus, the only possible relief available to Jackson (as regards rights in the invention) is I think limited in this case to a declaration of entitlement (*Szuc's Application* SRIS O/4/86).

37. The right to be named as inventor is conferred by Section 13(1), while Section 13(3) gives

any person the right to apply to the comptroller effectively to remove the name of an inventor on the grounds that the person named was not so entitled. The provisions of section 13 are as follows:

Section 13(1)

The inventor or joint inventors of an invention shall have a right to be mentioned as such in any patent granted for the invention and shall also have a right to be so mentioned if possible in any published application for a patent for the invention and, if not so mentioned, a right to be so mentioned in accordance with rules in a prescribed document.

Section 13(2)

Unless he has already given the Patent Office the information hereinafter mentioned, an applicant for a patent shall within the prescribed period file with the Patent Office a statement -

- (a) identifying the person or persons whom he believes to be the inventor or inventors; and*
- (b) where the applicant is not the sole inventor or the applicants are not the joint inventors, indicating the derivation of his or their right to be granted the patent;*

and, if he fails to do so, the application shall be taken to be withdrawn.

Section 13(3)

Where a person has been mentioned as sole or joint inventor in pursuance of this section, any other person who alleges that the former ought not to have been so mentioned may at any time apply to the comptroller for a certificate to that effect, and the comptroller may issue such a certificate; and if he does so, he shall accordingly rectify any undistributed copies of the patent and of any documents prescribed for the purposes of subsection (1) above.

38. S.13(1) thus appears to limit the right to be named as inventor to published applications and granted patents. I do not believe there is any provision for the situation (as here) where an application is as yet unpublished, much less where the applicants themselves never filed a statement of inventorship. While the question of inventorship is relevant to entitlement of rights in the invention and will of course need to be addressed, I think that formally the application under s.13 has no basis under which it could be allowed to proceed, and no remedies under this section are relevant. In particular, I have no power to direct corrective action in respect of the international application or foreign national phase applications derived therefrom. However, any finding of the comptroller touching on questions of inventorship may be used in support of applications to the relevant authorities in the respective jurisdictions.

39. Having set out the legal principles to be applied, the way I shall now proceed is to weigh the evidence, resolve any conflicts there may be between the positions of the parties, and on the basis of my findings of fact address the following questions:

what inventions are present in the UK application?

when were the inventions made?

who made them?

what was the legal relationship between the inventor(s) and the other parties at the time of making the invention(s)?

what agreements touching on questions of ownership (if any) were made subsequent to making the inventions?

The evidence

40. Jackson has filed a considerable volume of evidence. However I need only consider in detail that part of it which is in conflict with the position of CHL. This reduces the amount of material somewhat. I note that CHL did not seek cross-examination of Jackson or his witness Dr Palmer. I therefore take it that they do not challenge his evidence (except insofar as it is directly contradictory to their own evidence). Aside from the fact that both parties claim to have discovered independently the concept of "internal wicking" and recognised its possible application in the field of diagnostic devices (which, while unlikely, is not strictly a conflict since both accounts are not mutually exclusive), the main difference between the parties lies in the nature and timing of the contacts between Jackson and Slater in the period before their formal collaboration started and what information passed between them in that phase. CHL do not in the main dispute the input that Jackson made later on because their position is basically that they had already made the invention by then.

41. Jackson's position is that he had independently been working on assay devices involving the principle of internal wicking. He says that he started development of the "coated paper" idea in 1995 following receipt of a letter from Unilever dated 28 March 1995 which warned him about possible infringement of their patents. He was in contact with Boots in July 1995, but this does not provide a clear documentary link to the coated paper technology. He has however produced evidence dating allegedly from November 1994 of what he says is a solid state "dipstick" concept comprising porous material modified to introduce water impermeable regions. This is not paper, but it does apparently show an enclosed wettable region. The opponents have not sought to contest the date of this evidence. On this basis, I accept that prior to 1995 Jackson was working

on diagnostic devices involving the concept of internal wicking, although the direction of this work was not aimed at that time at paper based devices.

42. Dr Palmer's evidence is important because he is the closest to an independent witness that there is in these proceedings. His evidence is also unchallenged by CHL in the sense that they did not call for cross-examination. Palmer shared laboratory facilities with Jackson between October 1995 and September 1996. He testifies that Jackson telephoned Slater in December 1995 and described to him the work he was doing on paper modified to have a waterproof surface and channels for directing the flow of assay reagents. He also confirms Jackson's position that he was already working on these ideas before he set up the laboratory in October of that year. This is the earliest independent indication of paper having an *impermeable* surface coating and channels.

43. Turning now to the disputed telephone call in June 1995, Jackson produced evidence in the form of an itemised telephone bill that such a call had been made and there is a copy of a document which purports to be a confirmatory fax which makes some reference to the content of the conversation. The date on the copy is incorrect, but Jackson explained this discrepancy by reference to the software used to print it from his computer. The fax itself says

"Regarding the paper modification technology, I would be very interested in hearing more about this. I am currently involved in creating a variety of rapid diagnostic assay formats and I am always willing to evaluate new materials."

44. It would certainly would have been possible for this evidence to have been concocted to appear the way it did, but if someone was setting out to create a deliberately false impression of the contents of a telephone conversation which took place in 1995, I do not believe they would have gone about it in this tortuous way - they would just have created a forged fax with a date on it. I am therefore inclined to accept this evidence at face value, from which I conclude that there was indeed an exchange of ideas relevant to the invention. In coming to this conclusion I have taken into account that CHL, given that they deny the call, are in a difficult position since proving a negative is always problematical. However, their evidence is intrinsically weak, relying as it does wholly on the hearsay of Hardman that Slater had told him that he did not remember the call. Slater himself in presenting his answering case conceded that the evidence *prima facie* suggested such a call may have taken place, but maintained that its content was not such that he could recall it and that he would have disposed of the fax. Besides ruling that the

evidence confirms that such a telephone call took place and technical ideas exchanged, I cannot make any finding as to its content because the confirmatory fax does not go into sufficient detail.

45. In July 1995 Jackson had contact with a computer plotter company. He produced documentary evidence of this which he submitted showed that by this stage he was investigating the possibility of using printing technology to deposit impermeable material into paper. However, the documents do not go into detail about the nature of the enquiries he was making. Later in the same month he had contact also with an ink-jet printing company which is evidence that, at a similar time, he was thinking along the lines of depositing diagnostic materials in discrete areas on paper.

46. Turning now to the evidence relied on by CHL, the most important of this is their laboratory book. In particular, the lynchpin of CHL's case is that on 11 May 1995 the key experiment was done in which it was realised that paper having water resistant surfaces could take water into its internal porous space and be used *inter alia* in diagnostic assays.

47. I have studied the filed extracts from the book. In the record of the experiments, not all the writing is fully legible, but as far as I can discern, the record is headed "Surface test for wet strength" and goes on to say that "*Squares (1.5x1.5) of paper prepared only with 1/3 PBS (T1) were dipped [sic] for different times in a Petri-dish containing 20ml of "2mg/ml" t.r., with 0.5 ml Glt.*" I take the abbreviations to relate to the solutions used in the experiment. A footnote says that "*The squares were dipped for the designated amounts of time, after which they were left to air dry in the lab.*" There is a table which appears to relate the time of dip to the time for the samples to disintegrate, with descriptions in words and diagrams of the manner in which the samples disintegrated. In most cases this seemed to have involved layers peeling off the samples. The experiment appears to have been carried out between 10am on 11 May 1995 and 12am on 12 May 1995. A further page from the book appears to record an experiment in which a sample was sprayed. The text reads "*spray PBS paper (produced by us) with mix (cellulase + Glut) (left to dry in fume hood)*". This sample appears to have been tested in a "whirlimixer". There is what appears to be a conclusion at the end of this section that spraying corresponds to dipping of about the same time.

48. The second extract from the laboratory book apparently comprises a note of a meeting which took place on 4 August 1995. The initials DH, MH, IS, PC, HB and DS appear at the head of the note. The note is extremely abbreviated and it is difficult to discern what the subject-matter might have been, but there are references to "*cellulases*" and "*surface sizing*" which are enough to satisfy me independently that this note is related to the subject-matter of the Hercules

patents. One of the entries is "*Dipsticks*" under which there are four indented items one of which is "*sizing*". These four items may or may not be intended to relate to the same topic.

49. Under cross-examination, Dr Hardman explained that the laboratory book was one of some one hundred and twenty-three such books now in the possession of the liquidator which charted the progress of the work from early experiments on modifying paper to improve wet strength right through to the development of the diagnostic devices of the invention. This work, according to Dr Hardman, had been started and carried through by CHL.

50. Dr Jackson pressed Dr Hardman very hard to admit that there was no evidence showing that CHL were working on the invention prior to 1996. However Dr Hardman insisted that the laboratory book extracts showed the key discoveries in May 1995 and August 1995 which had led to the invention. When asked why he had not produced evidence of any other experiments relating to the "dipstick" concept or the application of the idea to diagnostic devices, Dr Hardman's response was to say that such evidence existed in other laboratory books (which were not before me in evidence) but that in his opinion the invention was as shown in the extracts which had been produced. He said that the first prototype was made on 28 September 1995, involving ink passing up a paper, and that Dr Lang started work on the project in November or December 1995. Hardman claimed that there was a documentary record of this in a laboratory book somewhere but accepted that it was not part of the evidence before me. He accepted that work had not progressed beyond tests on disintegrating paper by the end of 1995, but said that between then and the date of the fax to Jackson in March 1996 they had made the progress set out in that fax. Under quite strong pressure, Hardman refused to accept that Jackson made any initial contribution to this work, insisting that the timing was just a coincidence. Hardman's account was that CHL had acquired knowledge about diagnostic dipsticks by dismantling a commercial device that they had bought. He did however agree that the reference in CHL's statement to "marketing skills" made in respect of their first contact with Jackson should more appropriately be to "market awareness skills".

51. Notwithstanding Dr Hardman's insistence that there is further documentary evidence in other laboratory books, I am constrained to consider only the evidence before me. Having considered this in the light of Hardman's further explanations, I accept that as of May 1995, CHL were working on sizing paper using enzyme containing compositions which modify the surface properties. However I am not convinced that paper having an "impermeable" surface coating which is the concept crucial to the invention had been developed at that time or that the utility of this concept in diagnostic or similar devices had been recognised.

52. On the other hand, there does appear to have been some discussion of "dipsticks" at the meeting on 4 August 1995 (as evidenced in the second laboratory notebook extract). In his submission to me Jackson attempted to argue that this was unrelated to the invention, but in the light of the reference to dipstick type diagnostic devices in the Hercules patent which was originally filed on 16 August 1995, I am inclined to accept CHL's submission that by then at least they did have the idea in mind. I also accept Hardman's oral testimony that a prototype was developed in September 1995 involving wicking of ink, although in the absence of the necessary supporting evidence the exact form of this device is unclear.

53. Having considered both accounts of the "pre-collaborative phase" in the relationship between Jackson and CHL, and having already found that there was a telephone conversation between Slater and Jackson in June 1995 in the course of which there was some exchange of technical ideas, it seems to me the most probable explanation is that following (or possibly even during) this conversation both Jackson and Slater came to realise that paper modification technology of the sort CHL had or could develop might have utility in the diagnostic technology that Jackson was developing. This would have been a synergy of the stuff of which genuine inventions are made. Both men would have then gone back to their own laboratories and developed the idea from their respective perspectives. By the time they next had contact each would have made some progress, but this progress accelerated when they agreed to collaborate. This scenario is consistent both with the lack of any evidence relating to impermeable coated paper prior to June 1995, and with the evidence of both parties that they had started to develop ideas in relation to impermeable coated paper and diagnostic devices in the later part of the year.

54. As to the collaborative phase of the relationship, Hardman accepted under cross-examination that Jackson did provide CHL with know-how and technical expertise relating to the examples cited in the CHL patent, including information about specialist reagents. He accepted that the work went faster because of Jackson's input, although by the end of 1997, the formulations in use were different. He also accepted that the heteropolysaccharides and acrylic polymer coatings which are the preferred coatings in the application were developed during 1996 after contact with Jackson.

55. Hardman's explanation as to why Jackson had initially been made such an apparently generous offer of 50% of the joint venture was that there was a perceived need to complete the work for the patent application and Jackson was needed to develop the technology. CHL had not taken advice on bringing Jackson in as a partner and that in the light of subsequent advice from

Rothschilds, this was seen as over-generous and a mistake. While it is quite plausible that CHL's investors were alarmed by the apparent generosity of CHL towards Jackson, I find it rather too much to swallow that however naïve they might have been, CHL would have offered Jackson 50% if they really considered that he had made no contribution whatsoever to the original invention.

56. My impression of Dr Hardman was that he was somewhat evasive under close questioning. He seemed reluctant to go into detail about the circumstances surrounding the making of the invention. Whether this was because of the sketchiness of his personal knowledge or for some other reason, it did not give me confidence in the reliability of his account. I note that according to CHL's own evidence, Slater was probably closer to events than Hardman, yet CHL chose not to submit evidence by Slater (or either of the other purported inventors Dr Lang and Mr Reid, for that matter). I find this hard to understand.

57. Evidence from Dr Lang in particular would have been especially crucial in resolving some of the outstanding issues of this case. I heard testimony from Dr Hardman to the effect that, following his joining CHL on a permanent basis and following a thorough reconsideration of the dipstick concept in November 1995, Dr Lang had started work on the diagnostics project in November/December 1995. The exact date of this may be of importance given the uncontested testimony to the effect that Jackson disclosed details of his work to Slater in December 1995 and given also that Jackson has produced a document in evidence which is arguably suggestive of work not starting in earnest on the dipstick project until about April 1996, ie after the start of the admitted collaboration between the parties.

Construing the invention and determining the date of the invention

58. Neither party addressed me systematically on the question of construing the invention(s) present. However I believe I can discern a logical grouping of the invention(s) present under the following basic headings:

(a) the concept of treating a porous substrate (not necessarily paper) so that it comprises a water impermeable external surface together with a continuous water permeable internal region, whereby access to the internal region is limited so that the device is suitable for carrying out diagnostic assays

(b) a device as above involving the use of paper coated with an impermeable layer

(c) compositions used in coating paper to produce the above effect, and paper *per se* coated with such compositions

59. I also note that the description goes into considerable detail about how the invention is put into practice, including information about the presence of two or more distinct channels in the internal wettable region, the use of particular polymer compositions, the techniques used and the analytical methods applied. Any or all of these aspects could give rise to inventions in their own right. However neither party addressed me in detail on such matters, and I propose to deal with them in a general way.

60. I shall now proceed to apply the facts as I have found them in the case of each of the above inventions.

61. It follows from my earlier finding of paragraph 41 that the invention identified as (a) was devised earlier than June 1995 by Jackson. He discussed this invention in June 1995 and/or December 1995 with Slater and as a result of that conversation the invention identified as (b) was conceived. There was inventive input from both CHL and Jackson and the latter is therefore qualified to be regarded as a joint inventor. I am not required to make any finding as regards the inventive input of Slater or other CHL staff beyond stating that some contribution was made.

62. Jackson has not disputed that CHL personnel developed the specific technology involved in the compositions used for coating the paper, and Jackson is therefore not an inventor of invention (c).

63. As I have commented above, there is a considerable mass of other detail in the patent concerned with the detailed putting into practice of the basic concepts. It is agreed between the parties that much of the development work was done by CHL staff but that Jackson visited CHL on a number of occasions and had a technical input into the work which was being done. However, the testimony of Hardman was that this input was not such as to qualify Jackson to be a joint inventor. I differ, Jackson was clearly involved in much of the detailed work regarding the various diagnostic agents to be used that found its way into the content and claims of the UK priority application that, even in the absence of my conclusion regarding the fundamental inventions (a) and (b) above, then I would find joint inventorship established. In these circumstances I think it is reasonable to conclude that Jackson was a joint inventor of all the detailed aspects relating to the device, except those aspects relating to the polymer compositions

used for the paper coatings, on which Jackson has disavowed any claim.

Entitlement

64. The situation is that this will follow my findings of inventorship above, subject to any overriding contractual arrangements and in the absence of any relationship of employment between the parties. In the present case, there is no question of any employment relationship, but it is not denied that there was an initial agreement that Jackson and CHL should share a 50/50 interest in a joint venture to be formed to exploit the technology, and that the joint venture would hold any patent which may arise from the work. Although this agreement was never formalised in writing, there was a clear understanding between the parties by the end of July 1996 and subsequent action was taken in pursuit of it. Jackson closed his own laboratory facility and moved materials to CHL, and a company was established. From this I conclude that there was a genuine intention by the parties to be bound by the agreement. CHL attempted to vary the terms, but at no subsequent time was there any meeting of the minds on alternative arrangements.

65. I interpret the agreement between the parties as relating to paper-based diagnostic devices and thus to the invention I have defined as (b) above. Since I have already concluded that this is a case of joint inventorship, and in the absence of any overriding provision the appropriate result in respect of any granted patent would in any case be an equal share, the 50/50 agreement will in practice have no effect. I should add for the sake of completeness that the agreement is clearly limited to devices for use in diagnostic and similar tests, so any development relating to paper technology *per se*, in respect of which I have concluded above Jackson was not an inventor, would not be affected by the agreement and Jackson would have no interest in such inventions.

Conclusion and findings

66. I have already commented that no remedies under s.13 are available in the case of a patent application which has been terminated before publication. However, my findings of fact as to inventorship, **that is joint inventorship in respect of now terminated application GB9700759.5**, may be referred to by Jackson in any subsequent proceedings he wishes to bring in respect of applications claiming priority from this one, for example the PCT application or the EP(UK) application arising therefrom.

67. As regards the question of entitlement, I find myself in some difficulty. There is no doubt that following on from my decision regarding the issue of inventorship that Jackson has established his entitlement to be regarded as a joint applicant of the now abandoned UK application. However, that in itself is a hollow victory in the light of the termination of the UK

case itself and the subsequent publication of its content in the PCT application. That rules out a number of the specific remedies Mr Jackson has requested, eg those of sub-paragraphs (b), (d), (e) and (f), and I have already stated in paragraph 35 above that ante-dating of priority dates is not allowed and that s.8(3)(c) would appear to rule out the resurrection of this application itself. Further, no additional pending UK applications based on Jackson's work and ideas have been identified (apart from the EP(UK) for which see below), and although I could in other circumstances make an order in respect of the ownership of the PCT application (and the other foreign applications (including the EP(UK)) consequential thereon), no formal application under the appropriate section 12 has been made in this case.

68. I can do no more, it seems then, at this stage than to make a number of findings of fact, ie that:

(I) Mr Jackson is a joint inventor of the subject matter of patent application GB9700759.5;

(II) Mr Jackson should be regarded as a joint applicant of the above identified patent application;

(III) as regards the particular claims for which Jackson may be entitled to sole rights and those for which he may be entitled to joint rights, this is not something upon which I feel it would be helpful to rule at this stage for a number of reasons, *inter alia* the matter was not argued in detail before me; the UK application is terminated beyond any hope of revival; and the PCT application itself, albeit containing similarly worded main claims to its UK priority application, contains a somewhat different set of subsidiary claims.

69. I am issuing an interim decision in this case because I do not know how the parties will wish to proceed in the light of my decision, for example

(A) Mr Jackson could come straight back with a formal request under s.12 in respect of the PCT application (and equivalent foreign applications such as the foreshadowed EP(UK)) if he feels it appropriate;

(B) The two parties might wish to get together having regard to my findings and work out some compromise solution to save yet more cost.

70. It should be noted in this regard with particular respect to the EP(UK) application that,

if and when, such application is granted and enters into force in the UK, then section 36(3) of the Patents Act, 1977 will bite meaning that, where two or more persons are joint proprietors of a patent, neither party may assign or licence the invention without the other's consent. Both sides may find that too much of a constraint.

71. Accordingly, I give the two parties one month from the date of this decision to decide how they wish to proceed. At the end of that time, if I have not heard from either party I will issue a final decision confirming my findings above and dealing with the matter of costs.

Costs

72. I see no reason to depart from the normal practice of awarding a contribution toward costs to the winning party (in this case Mr Jackson) in accordance with the Comptroller's scale. I am deferring this, however, until I see how the case proceeds. It may be that added costs are incurred through the continuance of these proceedings or alternatively it may be that the matter of costs may be agreed between the parties themselves as part of any settlement deal.

73. This being a decision on a substantive matter, the period for appeal is six weeks.

Dated this 28th day of March 2000

G M BRIDGES
Divisional Director, acting for the Comptroller

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