MEDICAL DISCOVERIES AND THE PATENT LAW*

By Arthur Dean, Barrister-at-Law

A meeting of the Medico-Legal Society of Victoria was held in the British Medical Society Hall, Albert Street, East Melbourne, on Saturday, 5th June, 1937, at 8.15 p.m.

Dr. Kingsley Norris occupied the chair in the absence of the President, Sir John Latham, Chief Justice of the High Court of Australia. Mr. Arthur Dean delivered an address on "Medical Discoveries and the Patent Law."

Mr. Dean said: Mr. Chairman and Gentlemen: In the course of this paper I am afraid it will be necessary, particularly in the early parts, to say something about some legal principles. In the past, various members of the medical profession have spoken to us about the intricacies of medical problems, and we lawyers all agreed that they did it in such a way that they made the most difficult medical topics we had to consider plain, even to the most learned of the lawyers amongst us, and I hope that the legal problems which I have to discuss will be plain even to the most distinguished doctors. If I fail to make some of the legal problems plain I can assure you that I am endeavouring to put it in as simple a way as I can, and I hope my legal friends will take that as an apology for stating some things which are somewhat obvious.

Having considered the title of my paper, I decided, that as it was my desire to inquire into the question of whether or not there should be patents for medical discoveries at all, I should consider that problem from the beginning, and I have put it in the form of a paper that I propose to read to you entitled *Medical Discoveries and the Patent Law.*

The question whether the laws conferring upon inventors monopolies in respect of their inventions should apply in the field of medical discoveries is one of some interest and one which has in recent years been the subject of consider-

*In *Maeder v. Busch* (59 C.L.R. 684), a case decided by the High Court of Australia since the delivery of this paper, the question arose whether a claim for a new method of conducting an operation upon a part of the human body was patentable. It did not become necessary to decide the matter, but Latham, C.J., expressed himself as "very doubtful" whether such a patent would be valid. Dixon, J., after a discussion of the problem, preferred to leave it undecided. The patent in question related to a process for permanently waving hair, and was held invalid for other reasons.—A.D.

able discussion in England, and appears to merit some attention. The task which I have set myself is to examine the points raised by this discussion and to endeavour to arrive at a solution of the question whether medical discoveries should be protected by Letters Patent at all. In order that the issue should be reduced to as clear a form as possible in the space of this paper I have divided the topic as follows:—

1. A short examination of the basis of our patent system. This will aid in determining the reasons which justify the granting of monopolies, which reasons will later on be considered in relation to the objections raised to monopolies in respect of medical inventions.
2. An examination of the principal requisites of a valid patent. It will appear that many useful and valuable discoveries cannot be made the grant of a patent at all, and that as to others, the scope of the patent is more limited than has sometimes been supposed.
3. The extent to which patents have been obtained in the field of medicine, and some account of the various kinds of medical patents actually in existence in Australia.
4. The medical view of patents and the controversy which arose while amendments to the British Patents Act were under consideration in 1930 and 1931, and the various solutions offered, and conclusions reached.
5. The conclusions to be drawn from such controversy, and the justification for medical patents in the light of the basis of patent protection as stated at the outset.
6. A very brief examination of a proposal which has been advanced, particularly in Europe, to grant patents on a more extended scale than hitherto, in order that the discoverer of a principle which comes to be employed in industry may reap some reward for his discovery.

At the risk of disappointing my medical friends I desire to make it quite clear that this paper is not concerned at all with the subject of "patent medicines," as that expres-

sion is commonly understood. In Acts of Parliament and amongst lawyers the expression refers only to medicinal preparations protected by existing letters patent, and where it is used in this paper it is used in this strict sense. But in common parlance, the expression is used as denoting proprietary medicines put upon the market by a particular firm under a trade name. Such medicines may or may not be patented; they may or may not be made by a secret process. But the point about such preparations is that they are sold under a trade name which other persons may not lawfully use. Others may make the same preparation in precisely the same way, if they can, but they must not sell it under a name employed by another person. The patent law has nothing to do with patent medicines in the sense in which that expression is commonly used, as denoting proprietary lines.

1. *Basis of Patent Law*:

The origin of the modern patent law is of some historic interest. The Sovereign has at common law always had power to grant letters patent conferring privileges of various kinds upon his subjects. The best known to-day are in respect of peerages and appointments to offices, e.g., judgeships. By means of such prerogative the Crown early claimed the right to control trade by granting privileges to individual traders. Thus Edward IV granted to two Aldermen the sole privilege of making the philosopher's stone. There is no record of any profit having been made by the grantees. By the theory of common law, this royal power was regarded as limited to grants of patents in cases where the grant was for the good of the realm; and in cases where it was not, the Courts would revoke the grant upon the obvious ground that the King had been deceived by the applicant into making his grant. There were two known classes of grant, firstly, those in return for the introduction or invention of a new trade or a new article, which were considered good. Secondly, those which were in restraint of trade, which were bad. In the reign of Queen Elizabeth, Cecil hit on the idea of raising Crown revenues by the grant of patents for improper pur-

poses to those who could pay handsomely for them. The Crown was often at some pains to justify the grant on public grounds. Thus the Queen granted a patent for making playing cards, the grant reciting that she did so, "perceiving that divers subjects of able bodies, who might go to plough, did employ themselves in the art of making cards."

Many disputes between the Commons and the Crown occurred over this question of Monopolies in the reigns of Queen Elizabeth and James I, and the worst were cancelled. One of the most notorious was a patent for the sole right to make salt. Another was for saltpetre. The patentees had the right to search premises on suspicion that saltpetre was stored there, and in the course of such searches frequently caused considerable damage. Immunity from search could be purchased for a lump sum, and thus the "racketeering" business came into being. In 1610 James I published a book entitled the Book of Bounty, wherein he announced that no one was to apply to him for patents except for new inventions. Undeterred by the Royal command, however, numerous persons continued to take advantage of his simplicity, and, in return for contributions to the royal revenue, to apply for and obtain letters patent for what were not new inventions. In 1628, however, the Statute of Monopolies was passed, at a time when the King was on good terms with the Commons. The modern law of patents depends largely upon the words of this enactment, and I quote the most important part of it. The Statute declared all monopolies void, but excepted from this provision "any letters patent and grants of privilege for the term of fourteen years or under, hereafter to be made of the sole working or making of any manner of new manufactures within this Realm, to the true and first inventor and inventors of such manufactures, which others at the time of making such letters, patents, and grants shall not use, so as also they be not contrary to law nor mischievous to the State, by raising prices of commodities at home, or hurt of trade, or generally inconvenient." The important words of the enactment are that the inventions are to be for a "manner of new manufactures

. . . which others . . . shall not use." It follows from these words that the invention must firstly, be new; secondly, be a manner of manufacture; and, thirdly, be one that others are not using. The present British and Australian Patent Acts define "invention" by reference to the Statute of Monopolies.

Before considering the effect of these words it is desirable to add a few remarks upon the policy of our Patent law. Its objects are two-fold. In the first place it aims at stimulating research by offering the inventor the reward of a monopoly in his invention for sixteen years; and in the second place, it obliges him in return to make a full public disclosure of what he has invented, so that when his monopoly period expires, the public may have the benefit of his invention, and during such period it may serve as a starting point for further research. If it were not for such reward, the inventor would be tempted to try and keep his invention secret while exploiting it commercially for his own benefit.

Lord Coke, the famous lawyer of the time of James I, has stated it thus:—"The cause wherefore the privilege of new manufactures was declared to be good, was, because the inventor bringeth to and for the Commonwealth a new manufacture by his invention, costs and charges, and therefore it is reasonable that he should have a privilege for his reward (and the encouragement of others in the like) for a convenient time." It will be necessary later on when we come to consider medical patents to consider the real intention of the patent law in the way of rewarding a patentee for what he has patented.

2. *What Can be Patented?*

An invention, to be patentable, must be new. This does not mean merely that the article, machine, or process must be one not made or used before. The man who took the "Dewar" flask of the laboratory and strengthened it so as to convert it to the familiar vacuum flask of commerce produced a new article, but his patent was held

invalid. He had not exercised any invention in making his adaptation. The familiar multi-ply brown paper cement bag which litters our streets for a radius of several hundreds of yards from every building in course of erection was a most useful and serviceable container, but its originator could not sustain his claim to be an inventor. Further, however ingenious the idea may be, he must produce some article of commerce which is either new in the sense I have indicated or is made according to some process new in that sense. The man who devised an ingenious method of setting a fire to burn out a stump in such a manner that as one end of the wood was consumed the rest was fed into the fire, was refused a patent. He produced no new article; there was no "manner of manufacture." Similarly, the discoverer of a new principle or a new quality of a known substance cannot claim to be an inventor, however meritorious his discovery may be. Newton could not have obtained a patent for the law of gravity; nor Harvey for the circulation of the blood. Similarly there could not be a valid patent for the production of a rust-proof wheat, or a seedless grape, or a new chrysanthemum. In America, however, recent legislation has enabled such patents to be granted. America is wiser, or has progressed further, because she has permitted patents to be granted now in respect of plants of a new type. A patent would not be granted for the discovery or cultivation of a new herb with highly medicinal properties; nor for the discovery that a known substance was a valuable remedy for a specific disease. The discoverer of the endocrine glands and their functions would not be entitled to a patent for his discovery. A surgeon could not patent a mode of performing an operation, nor a physician a course of treatment or a dietary schedule. In 1914 a patent was sought for the use of well-known electrical apparatus for the purpose of extracting lead from men, particularly from persons suffering from lead poisoning, but it was refused. Buckley L.J. has dealt with the difference between invention and discovery in these words:—"Discovery adds to the amount of human

knowledge, but it does so only by lifting the veil and disclosing something which before had been unseen or dimly seen. Invention also adds to human knowledge, but not merely by disclosing something. Invention necessarily involves also the suggestion of an act to be done, and it must be an act which results in a new product, or a new result, or a new process, or a new combination for producing an old product or an old result."

It may seem unfair that scientific research workers whose discoveries may amount to valuable contributions to the sum of human knowledge are not able to obtain protection for their discoveries, and in recent years there has been much discussion of the possibility of devising some means whereby the man who gives to the world a valuable scientific discovery shall receive the same reward as he who presents it with a new tin-opener. This is a fascinating subject, closely allied to our present inquiry. I shall return to this matter before I conclude this paper.

New Products

The next problem which I want to consider for a few moments—and you will perceive, I hope, that I am gradually approaching my subject, is how far a new product is capable of being patented, apart from the method by which it is produced. This question must be regarded as not finally solved, as each side may claim support from textbook writers and judicial pronouncements. The more recent opinion is against the validity of patents for products. You cannot patent a product although you can patent the way of making the product, or, in other words, the product. Thus Lord Shaw has said—"A thing discovered in ordinary trade or adventure, with no novelty or invention of means employed, is not patentable any more than would the discovery by a sailor of an island cast up by the sea" (*42 R.P.C. 180, at p. 207*). The discoverer of a new product would obtain protection for his method of manufacturing the product and against the use of any method which could fairly be said to be analogous to his

method, but would not be entitled to restrain the manufacture of the same product by entirely different means. The question of what is a patentable invention and what is merely a discovery of a new product is one of more interest to lawyers than to doctors and will not be pursued further. But it is very necessary to bear in mind throughout the remainder of this paper that not every new thing is patentable. It seems that in the discussion of this question in the Medical Societies and journals, the limitations of the law upon what is patentable have not always been known to or kept in mind by the speakers and writers. This is no doubt largely due to the fact that such questions do not frequently arise for determination. Patents are granted somewhat readily, their ultimate validity being left for decision if the patent should be attacked. By far the greater number of those which are challenged in Court are held to be invalid. Unfortunately the average member of the public is all too unwilling to enter the lists in the public interest, but at his own expense, to upset patents owned or controlled by powerful and wealthy companies. From this deplorable lack of public spirit it has come to be assumed that patents are valid when in fact they are open to attack, but from the practical point of view we are more concerned with the fact of a patent having been granted than with its actual validity.

In 1919 a new provision (Sec. 38A) was introduced into the British *Patents Act*. It related to substances prepared by chemical processes or intended for food or medicine, and provided that no claim might be made for the substance itself, but only for the substance prepared or produced by special processes or their obvious chemical equivalents, but the defendant in an action for infringement was bound to establish that his process was different from that of the patentee when his substance was of the same chemical composition and constitution as that produced by the patented process. This Section, not in force in Australia, removed the doubt as to the patentability of a product and was probably only declaratory of the law as stated already,

so far as products used for medicine or food were concerned. During the war it was also found that Great Britain was suffering from a lack of medicine and drugs, many of which were the subject of patents. It was therefore enacted in 1919 (Sec. 38A (2)), that in relation to patents for inventions intended or capable of being used for the preparation or production of food or medicines, the Comptroller might grant licences to use the invention for such purposes and to fix the royalty payable, and was instructed to do so, having regard "to the desirability of making the food or medicine available to the public at the lowest possible price consistent with giving to the inventor due reward for the research leading to the invention." This Section, not copied in Australia, gave a certain degree of control over the exploitation of patents for medicinal preparations, and prevented any abuse of the monopoly thereby conferred.

A factor of importance in considering the problems to be discussed hereafter is that the International Convention of 1883 dealt with the protection given by each of the contracting countries to inventors in all other countries. This Convention includes practically every country which is sufficiently civilized to have a patent law at all. Each country agrees to grant to citizens of the others the same benefits as it grants to its own citizens. A man who applies for a patent in Australia on 1st May, 1937, may make application for a similar patent in such Convention countries as he chooses and get priority as from that date over all other persons. Australia grants a similar benefit to persons who apply first in another Convention country. There is a complete interchange of inventions between the various countries, and any person who searches the Patent Office records may find out what new inventions have been applied for in any of the principal countries of the world, whether the inventors have applied for patents in Australia or not. Any drastic limitation imposed by our law upon the patenting of inventions of medicine or anything else may lead to retaliation abroad, and retaliation is usually more severe than the injury which provoked it. Sev-

eral countries, however, including Italy and Japan do not allow patents for medicines or for the processes by which they are made. Other countries, including France, refuse patents for pharmaceutical compounds including the processes whereby they are produced.

There are very few cases reported in which medical patents have come before the Courts. The most recent of such cases appears to have been in 1928 when an American Drug Company sued an English Drug Company for infringement of a patent relating to a highly technical chemical patent for a process for producing a new substance having germicidal or non-toxic qualities. The hearing occupied 17 days before the trial Judge, and 19 days before the Court of Appeal, and resulted in the patent being declared invalid. There is in the judgments much informative opinion upon the legal problems relating to chemical patents, but it is so inextricably bound up with the intricate chemical matters involved as not to be readily available. Amongst other reasons for holding the patent invalid it was said that while it was true that the bodies produced by the Specification had never been produced before and had a high therapeutic value, still sufficient information had been given in papers read by research workers before learned Societies in America and in Germany to show that if anyone desired to make the new bodies they could probably be obtained in the way indicated. All that the patentee had done was to verify the statements of the earlier chemists and to discover that a substance produced as the earlier chemists had described possessed a high therapeutic value. Astbury J. said:—"In my opinion, the prior documents made it impossible for chemists subsequently to acquire a valid patent for continuing the published work of those who had gone before them on their lines, following out their directions, with the bodies indicated by them for the purpose of producing the results which they had been told to expect by so doing. This would be too great a reward for merely verifying the work of others and proving their general statements, conclusions,

and indications to have been well founded, and would, in my opinion, if countenanced, be a serious blow to chemical industry;" and Lawrence L.J., said: "The discoverers of the reactions, in publishing their discoveries for the benefit of the world, expressly stated that, in their opinion, they were applicable to the bodies to which the Plaintiffs have applied them, and the Plaintiffs are seeking to appropriate those discoveries . . . solely because they have ascertained by experiment that the anticipated result has been produced."

As will be seen presently, one of the objections raised against patents in respect of medical discoveries is that it enables commercial firms to monopolize the results of prior scientific discovery and research. The case to which I have been referring shows that the Courts do not countenance patents which merely apply knowledge made available by others. It seems, therefore, that the validity of the objection may be over-estimated, as the Courts will only protect the patentee to the extent to which he has himself actually made an invention and no further. This should be borne in mind presently when considering the Vitamin D Patent and the objections based on its exploitation of prior knowledge. At the same time it is seldom that any litigant is prepared to conduct highly expensive litigation with a powerful corporation in order to upset one of its patents, and in the vast majority of cases the mere existence of the patent and the display of an intention to defend it are quite sufficient to ensure that the patent is respected.

3. *Medical Patents in Australia*

It may be of interest to add a few words as to the extent to which the patent laws have been availed of in Australia for the protection of medical discoveries. One of the difficulties which is met with in dealing with this matter is that there is often great difficulty in determining whether any given patent has any medical or surgical significance. Indeed, it is remarkable how little is usually disclosed by the Specification as to the application which the invention therein described may have in relation to medicine. This

will be seen later on to constitute a major difficulty in the way of devising any special law applicable to medical patents. One recent patent is for the manufacture of a substance which, for all that appears from the Specification, might be a specific for a common cold, a chilblain cure or a parasiticide. A 1934 invention is for a process for permanently altering the energy content of dipolar substances by exposing them to a concentrated electronic field oscillating with a quasi-ocular frequency which is substantially equal to one of the characteristic periodicities of the substance. It is said that such a process has curious properties; gels are rendered more mobile for short periods, and then less mobile. This would be a possibly effective way of committing murders without risk of detection, and the idea would be of value to the writer of detective fiction; used in another way it promotes growth, and may serve as a universal remedy. The inventor gives no hint as to the intended manner of use, but it is to be hoped that no one will hereafter commit a murder and infringe a patent *uno flatu* —unless it can be arranged to hear the infringement action before the criminal trial. A modern patent for the prevention of snoring is one which might not be easy to classify. A number of inventions in organic chemistry may have a medical application, but are equally applicable in the manufacture of dyes or for use in vulcanising rubber. Many inventions relate to chiropractic adjustment devices. Are these regarded by our medical friends as medical inventions? A great many modern patents are for developments in electrical discharge tubes, and a great deal of inventive effort has been put forth in recent years in relation to such articles. These have many practical uses apart from medicine, but they are also of great value in X-ray plant, which plays a very large and increasing part in medical work.

These illustrations serve to show the very great difficulty which will be found to exist in defining medical inventions if it be proposed to exclude such inventions from the operation of the patent laws.

I propose next to consider briefly the various kinds of medical patents which have been granted in recent years, in order to show the principal directions in which patent protection has been sought for medical inventions.

(a) Medicinal and toilet preparations. It is not easy to mark the distinguishing line between a medical and a toilet preparation. How would a patent to remove freckles be classed? Medical preparations include antiseptics and disinfectants; synthetic hormones, serum preparations, viruses, vitamines, and ordinary medicines. All of these usually emanate from the drug manufacturer. Then there are the numerous private persons, mainly women, who discover some extraordinary remedy for some equally extraordinary ailment, and who communicate their discovery to the public by means of a patent application. The practice of the Patent Office is to refuse to grant patents for mere prescriptions, where the ingredients are known for those purposes contemplated by the applicant, and to allow them only in those cases where some not obvious result arises from the mixing of the ingredients. There is some danger in granting patents for "quack" medicines as the patentee is thus invested with a false authority whereby to delude the ignorant and the credulous. It would be interesting and amusing to get hold of some of the patents which were granted in respect of alleged medical discoveries of the past. One has been disclosed to me, a patent that got past the Australian Patent Office in 1906. It was patent No. 4934/06, and was for "An Electro-Medical Cell." It is a freak, but it indicates that there are a great many freaks, and some of these people have succeeded in getting patents granted for utter rubbish.

(b) The next group refers to surgical instruments. These appear to be relatively few in Australia, and a cursory perusal of the "Lancet" indicates the readiness of the Surgeon to publish to the rest of his profession any new devices he may originate.

(c) The next class relates to appliances such as deformity supports and artificial limbs. Down to the War such

inventions were very few, but a very great increase in the number of such inventions became apparent during and after the War. In recent years the number of patent applications in this field has fallen away considerably.

(d) Other types of medical patents include inventions for bandages and tampons, syringes, inhalation apparatus, and appliances for producing anaesthesia; acousticons and other devices for aiding the hearing. A large number of patents have been granted in respect of dental devices and appliances. Others are for use in electrical and massage treatment. There are numerous patents in respect of infant feeding and nursing. Stretchers and other hospital appliances are also frequently covered by patents. In recent years much ingenuity has been displayed in devising catamenial appliances. Incubators for new-born infants, and devices for treating hernia are also represented.

Contraceptive devices and appliances are also the subject of many applications, but the specifications do not usually set out the intended application of the invention in plain terms.

The foregoing rough summary of some of the modern trends in medical invention is based on information supplied to me by the Patents Office and will serve to show the wide area covered by inventors in relation to medicine and health. Few, if any, of the inventions are made by medical men.

One or two examples of interesting inventions might be added at this stage. A Frenchman has obtained a patent for a whiskey which will not intoxicate the consumer, or occasion uncomfortable reactions on the following morning. The idea is to incorporate in ordinary whisky a small quantity of cellulose, which has the effect of duco-ing the interior of the consumer and so preventing the whisky from being absorbed into the system. Why anyone should drink whisky which is rendered innocuous does not appear; nor is it made clear how the duco lining is to be removed when no longer required.

Sufferers from toothache may be glad to hear of a patent

for a cure for that affliction. The remedy consists of a mixture of epsom salts and gunpowder. The specification leaves the manner of use open to some uncertainty. Possibly the idea is that the gunpowder will destroy the offending molar and the epsom salts will remove the debris.

4. *Should Medical Patents be Granted at All?*

The history of the controversy which has occurred upon this question and the reasoning on both sides will now be considered. Down to very recent times British medical workers have accepted the view that it is undesirable that any individual should reap direct financial gain from a scientific discovery in the medical field. A B.M.A. resolution on the subject in 1903, affirmed again in 1920, was to this effect:—"That it is contrary to the ethics of the medical profession to attempt to secure a monopoly in the sale of any article or in the treatment of disease and especially by patenting any such article in the name of a medical practitioner whose name would necessarily be used in its advertisement;" and "that it is undesirable for a medical man who has invented a device intended for medical purposes to take out a patent for the purpose of deriving from such patent the financial results of a monopoly."

Again in 1929 it was laid down that "it is ethically undesirable for a registered medical practitioner who makes an invention or discovery in the medical field to derive financial benefit from the sale of the rights of such invention or discovery or from royalties for the use of these."

These principles, laid down for the guidance of medical practitioners and based upon professional ethics, have not always guided other persons. Difficulties arose from several sources. In practice, it is not ordinarily the medical man who makes inventions; and even where he does he cannot usually profit from them without the co-operation of the manufacturer. Many inventions are made by research workers employed by commercial houses which are induced to undertake the research and make the results available only by the prospect of gain. In the last place,

many British inventions are owned by foreigners who are entitled to British patents by reason of legislation giving effect to international conventions. Several illustrations serve to show what has occurred. In 1923, Dr. Banting made the final addition to a long series of discoveries of other persons which made it possible to manufacture insulin. A patent was obtained for his invention by the University of Toronto. The University gave the benefit of the invention to the British Government which, in turn, made it over to the Medical Research Council. The Council was much criticized at the time for accepting the patent, but it has been able by carefully limiting the number of licences, to ensure that insulin of the highest quality has been available at a low cost. I am informed that in the Commonwealth the Commonwealth Serum Laboratory is given the same privileges.

Doctor Harrington, whose discoveries removed most of the difficulties in the way of producing *Thyroxine,* did not patent the results of his researches, but published them. Later, he completed his work and succeeded in making Thyroxine available, but again did not take out any patent. If a foreign firm had then found out and patented a process of making this substance more economically than before, it would have had the effect of obtaining a monopoly, and could also have put a stop to research based upon its process. These results, however, did not accrue in respect of this product.

Vitamin D had been the subject of much research in Great Britain and elsewhere, and most of the difficulties in the way of its production had been removed by the time the final step was worked out by Professor Steenbock of the University of Wisconsin. He made over the patent for his process to the University, which proceeded to exploit it in the manner most profitable to itself. Not only did it exact royalties from all manufacturers who desired to make the product, but it alleged that it was entitled to a monopoly in such wide terms that it, and it alone, could benefit by subsequent knowledge obtained by British

workers. Other firms followed with patents for various improvements in the manufacture of Vitamin D with the result that it was said that British research workers were being exploited by foreign workers in such a manner that they were prevented from using their own discoveries.

A similar position was taken by the University of Chicago with regard to patents covering the toxin and anti-toxin of scarlet fever, with similar consequences to the British research worker.

It is, of course, no answer to a claim that an invention has been infringed for a defendant to say that while he took the plaintiff's invention, he made great improvements of his own to it. As it has been picturesquely expressed by an English Judge—"The super-addition of ingenuity to robbery does not make the operation justifiable." If, therefore, a patent is granted to one man in respect of an invention, the future development of that invention is in the hands of that man alone. If a patent is granted for a process for making a particular preparation, other research workers cannot safely employ that process as the basis of their own investigations. The injustice of this is obvious, but it is not limited to medical inventions, and the remedy is not easy to find.

There may have been remedies for such abuses. By the form of grant under the Australian Patents Act it is provided that the Letters Patent shall be void "if it is made to appear that this grant is contrary to law or is prejudicial or inconvenient to our subjects in general." In addition, there are provisions in both the British and Australian Acts to the general effect that where a patented invention is used in a manner prejudicial to trade or industry, compulsory licences might be ordered. There is also power under the Australian Act for the Commonwealth or a State to expropriate any Patent on payment of compensation fixed either by agreement or by arbitration. No such power, however, exists in England except with regard to munitions of war. The power to order compulsory licences does not meet the present problem. It is

not likely to be invoked except by powerful corporations which can afford the expense and risk of heavy litigation and are likely to profit by success. Further, the jurisdiction of the Court is exercisable only when an invention is being used to the prejudice of trade or industry, but the question of permitting unrestricted use of medical patents has relation to the welfare of the general public and not to the protection of trade. Indeed, it may often be prejudicial to trade to enforce the medical view. There was not, therefore, any way in which the abuses referred to might be removed or lessened.

It happened that in May, 1929, the Board of Trade set up a committee under Sir Charles Sargant, formerly a Lord Justice of Appeal, to consider and report whether any, and if so what, amendments to the existing Patent Acts were desirable. This brought to life the controversy over medical patents as it seemed that the opportunity had now presented itself to try and obtain a solution of the problem. Of the many questions considered by the Committee, this was perhaps the most important. It was certainly the one which attracted the greatest number of witnesses and aroused the keenest controversy. The manufacturers did not desire the abolition of patents, and would have preferred the continuance of the existing system. But they wanted the co-operation of the medical profession to guide them in their researches and to test the efficacy of their discoveries in actual practice. The medical profession, as has been seen, had a traditional and deep-seated objection to the granting of patents for medical inventions. The manufacturers in these circumstances proceeded to search for a compromise. A joint committee representing the Association of British Chemical Manufacturers, the Chemical Society, the Institute of Chemistry, and the Institute of Chemical Engineers formulated a scheme for what it termed "Dedicated Patents." In outline this scheme was as follows:—

Every patent for a medical invention should be administered by a government body on behalf of the public. This

body would have medical men amongst its members. The patents would be vested in a Trustee who might grant licences to such extent as he considered necessary or might declare them free to all. The inventor was to be entitled to the first licence and if he were able to work the invention to the satisfaction of the Trustee, no other licences would be granted. Royalties would be low and would go to the Trustee to cover expenses of administration, and any surplus would be available to promote medical research. The inventor was to be free to do as he pleased with the patent in foreign countries. By this means the invention would be utilized in such a manner that the public would get the most advantage as to both quality and price. The low royalties and the limitation of licences to a few highly qualified manufacturers under the supervision of the trustees would serve as an inducement to research.

The attitude of the British Medical Research Council was that it desired the abolition of patents for medical discoveries. It contended that in the medical field the patent law did not serve its purpose of stimulating discovery, as the real incentives to research were not financial; that such protection operated to the prejudice of British research workers; that the patent system prevents the free interchange of ideas amongst workers in this field; that all new discoveries for the alleviation of pain should be common property; and that for a medical man to be interested in a patent in his own branch of work was likely to lead him to prescribe the use of his invention and so to benefit himself at the expense of his patients. But the Council soon realized that the difficulties in the way of abolition of such patents were enormous. It would create difficulties with other countries which were parties to the International Convention; it would be impossible to define what was a medical patent, especially as some inventions have applications outside the field of therapeutics, and that the possible use of others in that field is not known until after the patent is granted; there would be no incentive to manufacturers who have to incur expense and assume risks

in the preparation of a commercial product; and finally, it would be likely to lead inventors to keep their inventions secret, while exploiting them commercially, just as the Chamberlain brothers did with their obstetrical forceps, thereby acquiring much odium and emolument. Realizing these difficulties, the Council did not press for abolition, but gave its support to the proposal for dedicated patents. The British Medical Association also supported the proposal, but it by no means gained the approval of all its members, *The Lancet* tartly remarking, "The doctor must not make money, the manufacturer must be guaranteed his." The proposal was also opposed by manufacturing chemists upon the grounds that it would discourage research by commercial firms, and encourage attempts to maintain a monopoly by keeping processes secret. It was also opposed by medical and chemical research workers upon the ground that ethically it was as correct for them to be rewarded for reducing human suffering as it was for the surgeon or physician to be paid for his services. The medical profession also was not clearly behind the Council of the B.M.A., and at its annual meeting referred the whole question back to the Council for further consideration, the debate indicating that the Association was unlikely to approve. So matters stood when the Board of Trade Committee presented its report in March, 1931.

The Board of Trade Committee came to the definite conclusion that no sufficient case had been made out for any compulsory dedication, and that such an alteration of the law would operate adversely to the fine British chemical industry, and discriminate unfairly against research workers in this country. The Committee added:—

"We fully recognize the importance of the interests involved, and the *prima facie* desirability that any important invention in the medical field should be available as speedily and freely as possible for the relief of human suffering. But a corresponding importance attaches to the encouragement of industry and invention for the purpose of discovering methods of alleviating this suffering. And if, in

general, the disadvantages of the monopolies granted by a patent system are more than counterbalanced by increased stimulation of industry and invention, we see no reason for thinking that the same result should not equally obtain in this particular field.

"As regards ethical considerations, we think that, so far as an ethical code regarding patents exists in the medical profession, it is not unreasonable that medical men should be left to enforce such a code ethically among themselves, but we feel strongly that the code should not operate to discourage that free co-operation between laboratory and clinical investigations which is essential to progress in this important field of human welfare."

Eventually a new Patent Act was passed which made no changes in the existing law as to medical inventions. In the debate in the House of Commons it was suggested that the Government should have power to expropriate medical patents for public purposes, just as it may do with patents for war material, but the Solicitor-General refused to deprive inventors of the benefits of their research. The B.M.A. regarded the Committee's Report as a dismissal of the proposal before it with "cavalier comment."

The subsequent history of medical opinion on the question so far as I have been able to discover is as follows:— In 1932 a conference of representatives of the Royal College of Physicians, the Royal College of Surgeons, the Medical Research Council, and the British Medical Association was held and agreed upon several resolutions, the effect of which was—

(1) Patenting of medical discoveries was undesirable in the public interest and international action in this direction would be welcomed;

(2) Experience showed that research was hindered by patents relating to animal compounds and bacteriological products such as serums, toxins, viruses, and that it was desirable not to grant further patents for such products.

(3) Patents for the synthetic preparation of new substances were not detrimental, and to abolish them would penalize commercial enterprise; but a scheme of dedication of such patents to the public would be desirable;

(4) Until a scheme of dedicated patents was introduced it was undesirable that medical men should apply for patents in the medical field.

These proposals came before the Representative Body of the British Medical Association in July, 1932, but by that time the Patents Act had become law and they were rather coldly received. The proposals were eventually adopted and the Council was asked to continue its consideration of the subject. So far as I can ascertain the question has not been directly raised again.

5. *Conclusions*

I want next to turn to the issues raised by the foregoing narrative, and to consider whether the objections raised by the medical profession are valid, and whether any remedies exist or can be devised for the improvement of the law. It is unnecessary to recapitulate the views submitted on behalf of various bodies summarized already. The position may be analysed in this way:—

1. The general law of patents exists to encourage research and the disclosure to the public of the results of such research by rewarding inventors by a grant of monopoly for a limited period, in return for the new knowledge given to the world.
2. Medical opinion is opposed to the granting of patents for medical discoveries for two reasons—
   (a) It is unethical for medical practitioners to take out such patents;
   (b) It is contrary to the public interest that patents in the medical field should be granted.

The Board of Trade Committee treated the medical objection as based mainly on ethical reasons, and said it could be left to the profession to attend to such matters. It does

not appear to have considered very fully the question of public interest involved. But it must be pointed out that public interest intrudes into many other matters besides the medical field. Patents directed to the improvement of the national food supply by improved pasteurization or sterilization of food products are at least of equal importance; patents which give greater safety against street accidents or railway disasters, or explosions in mines, or failure in lift gear, are also of considerable public importance, and it is easy to imagine many such. The abolition of patents for inventions which are of special benefit to the public would destroy the incentive to produce such inventions, yet this is precisely the field in which such an incentive is most desirable. It is plainly better that such important contributions to human welfare should be protected by the grant of a monopoly for a period of sixteen years than that for lack of an incentive an invention beneficial to mankind was never made at all, or if made, was kept a secret by the discoverer and never communicated to the world.

The question of public interest may, perhaps, be overstated. It would, no doubt, be a calamitous thing if physicians were unable to give the only treatment which could save the patient's life because of the fear that they would infringe a patent. So far as I have been able to discover, no such case has ever arisen, and no such case was suggested by any of the medical witnesses before Sir Charles Sargant's Committee. Perhaps the medical men present have had experience of this kind. But if, as I believe, the question has never arisen in such circumstances, it would seem that the bare possibility that it might do so may well be left out of account in considering the problem before us.

3. The abolition of patents would work unfairly against manufacturers and against the research work of private firms.

4. The suggested compromise of the dedicated patent appears to be impracticable and to provide no satisfactory solution for reasons already indicated.

5. The final proposal to distinguish between biological and synthetic products seems difficult to apply. In either case, as we have seen, it is only the particular process which can be patented, and not the product, and there seems to be no reason why a process whereby a biological preparation is manufactured should not be accorded the same protection as one which is concerned with the manufacture of synthetic products.

6. The conclusions of the Board of Trade Committee appear to be sound, namely, that it is impracticable to deny the benefits of the patent law to a special and not easily defined class of invention. The examples quoted earlier indicate how difficult it would be to define with any precision, what patents were to be classed as "medical." If it be conceded that in other branches of knowledge and industry a patent system is beneficial, why should it become detrimental in respect of medical discoveries?

But without adopting any of the proposals for amendment of the Patent Law submitted to the Board of Trade Committee, there are several specific questions which may serve as the basis of discussion at this meeting, and upon which the views of members of this Society would be of value. I propose to indicate these questions briefly and to offer a few comments upon each.

(a) Should Sec. 39A (1) of the British Act be adopted here?

The adoption of this Section would make clear what is at present not definitely established, viz.—that inventions relating to food and medicine should be protected only so far as the process of manufacture is concerned, and any person who can show that he produces a substance of the same chemical composition and constitution by a different process cannot be restrained. This seems a desirable provision, and no objection appears to have been taken to it in England.

(b) Should Sec. 38A (2) of the British Act be adopted here?

If this provision were adopted, a compulsory licence on

terms fixed by the Commissioner of Patents would be granted to any person applying for such a licence in respect of inventions relating to food or medicine, in the absence of good reason to the contrary. In granting licences and settling terms the Commissioner would have regard to the desirability of making such food or medicine available to the public at the lowest possible price consistent with giving to the inventor due reward for his research. This power appears to be useful, but I cannot find any record of it having been invoked in England. Medical opinion does not favour the clause because it recognizes the principle of medical patents. The strongest objection seems to be that to obtain a licence involves some inquiry of a litigous character which may cause considerable expense to the person applying in the public interest. It appears to be very doubtful whether the clause has any real usefulness.

(c) The most important issue which appears to emerge from all that has been said is whether the provisions of Sec. 93 and Sec. 94 of the Australian *Patents Act* cannot be availed of to achieve all that is necessary in the public interest. These Sections give power to the Federal Government by resolution of both Houses of Parliament to acquire any patent on terms to be settled by agreement or by arbitration, and empower any State by Act of Parliament to do the same. These powers are not limited, as in England, to patents for munitions of war, but extend to all patents. Under these provisions, if it is desirable in the interests of the public that any particular patent should be acquired, then either Federal or State authorities may acquire it upon payment of proper compensation to the owners of the patent. Having acquired it, they may throw it open to general use, surrender it, or grant such licences as they think fit. This has the advantage that it is brought into operation only where the public interest requires it; that the exercise of the power is not in the hands of private persons who must undertake the burden and expense of showing a proper case for licensing; that the appropriate custodians of the public interest are the Federal and State Gov-

ernments; that if private rights are to be acquired for public purposes, the purchaser should be one or other of such Governments, and public funds should be applied to the purchase. It seems that this power is a more satisfactory solution of the problems discussed than any proposal put forward in England, and involves no change in the present Patents Act. It adequately meets all objections to medical patents on the score of public interest. Objections on ethical grounds can be left to the medical profession itself.

My last observation on this question of medical patents is that although it may appear that the medical view of the ethical objections to such patents has not been accepted as a factor of importance, the profession merits the highest praise for its consistent advocacy of its traditional view. It is on record that in the 18th century a certain Dr. Oliver Bath invented the Bath Oliver. Disdaining to make a profit from his invention he gave his formula to his coachman, who made a large fortune, the doctor's only satisfaction being that the Biscuit bore his name. It is a matter of common knowledge that to-day not only do medical men refuse to apply for letters patent for their inventions, but they are very eager to make them available for the use of others. Thus every volume of the "Lancet" contains drawings and descriptions of surgical instruments devised by surgeons for special purposes. This attitude must win universal approval. The last matter I wish to deal with does not affect medical patents, but relates to patents for Scientific Discovery.

6. *Patents for Scientific Discoveries*

Side by side with the proposals advanced on behalf of the medical profession and others for the limitation of the operation of the patent law so as to exclude protection for inventions in a particular field of science, there has been put forward another proposal which would have a directly opposite effect. It has been considered by those who advance this second proposal that there is too little reward given to the research worker who makes discoveries in the realm of

science which are not at present capable of being protected, but which are often the principal contributions towards inventions which go to the enrichment of those lesser beings who devise the means by which such discoveries are finally made available to the public. They point out that there is a gap between copyright and patent. The composer of a sonata, the author of a book, the painter of a picture are all adequately protected by the law of copyright; the inventor of a new rubber heel or a pruning knife is given a monopoly by means of a patent; but a scientist who formulates an important fact of nature by making some discovery, for example, as to the unsuspected chemical or physical attributes of some body or substance, goes entirely unrewarded. The question was raised and discussed at various international congresses of persons interested in the patent law prior to the War. After the war an agitation broke out in France to secure more adequate remuneration for men of science, and this movement culminated in a private bill introduced in the Chamber of Deputies in 1922. Many organizations investigated the problem and presented reports. Several books were published on the subject. In 1925 the Minister of Commerce gave the bill its quietus by the familiar method of pledging the Government to some realization of the scheme. Much has been said and written on the subject in France since then, but no action has been taken. In 1932 a commission appointed by the Academy of Medicine approved a resolution submitted by Madame Curie in favour of such rights and recommending that "the recognition of these rights should be hastened by the initiative of the public authorities."

The subject has also engaged the attention of the League of Nations. After several discussions a sub-committee was appointed under Senator Ruffini which reported in 1923. Great Britain appears to have vigorously opposed the scheme. It was eventually sent to all Governments for report. Eight were favourable, but guarded in the best diplomatic tradition. Others were entirely non-committal. Great Britain and the United States of America were among

those which were hostile. An Australian Committee of patent attorneys, scientists, and the Assistant Commonwealth Parliamentary Draftsman, presided over by Mr. L. B. Davies, M.Sc., a Melbourne Patent Attorney, reported in favour of patents for scientific principles. The proposal was not that the discoverer should have a monopoly in exploiting the principle discovered by him, but that those persons who make profitable applications of his discovery should pay him a royalty determined by a tribunal appointed for that purpose. The report loses some of its value by reason of the dissent recorded by Professor Rivett, who, while recognizing the theoretical justice of the "principle patent" on the lines suggested, advances the following powerful objections to the scheme:—

(a) The discovery of a valuable scientific principle nowadays is seldom the work of a single individual, and except in rare cases, it is likely to be well-nigh impossible to assess the share of a particular person who may happen to claim full or partial reward for its later application.

(b) It is more than likely that for this reason amongst others, the leading men associated with discoveries of new principles will be chary of entering into what might become an unpleasant wrangle about priority and relative worth of contributions to knowledge.

(c) It seems to a layman that the scheme would give great opportunity for abuse and hence for litigation. (I do not like that association of words, but it is that of Professor Rivett.) In neither case is the genuine scientific worker likely to benefit.

(d) The scheme is not a full answer to the fundamental problem. To reward men for work which may later be applied (that is, commercially exploited for monetary profit) by others, while no reward is proposed for unapplied work, however brilliant, is to leave still unsolved the problem of fairly rewarding scientific men for their labours.

The League of Nations and certain quasi-official bodies continued to discuss, investigate, and report upon the project. Books continued to appear on the subject upon the

Continent. In 1930, an English lawyer, Mr. C. J. Hamson, published a book which had gained the Linthicam Prize at the North Western University. This is the only English work on the subject, and is the source of these remarks. The question itself, however, seems to be quite outside the sphere of practical application. In addition to Professor Rivett's objections, it should be pointed out that the scientist has never needed the financial stimulus, and has always been ready to make his knowledge public, which he may well not do if his part in a particular discovery is to be the subject of inquiry and possible reward. Without international agreement it would work unfairly against any country adopting the proposals, and international agreement seems highly improbable. The principal persons who will derive benefit, viz.—the scientific research worker and the patent lawyer, are too insignificant politically to be likely to lead to any additional burden being placed on the community in their interests.

It seemed desirable that in a paper of this kind, this question should be raised in outline, so as to show that while the idea of rewarding scientists for discoveries which lead to practical applications in human affairs has received a great amount of consideration by influential organizations and individuals, it is really quite hopeless of attainment. The Board of Trade Committee already referred to refused to consider the proposal on the ground that it was outside the terms of its reference, and that it would not be justified in giving countenance in advance to an international movement for rewarding by means of monopolies or otherwise scientific discoveries as distinguished from inventions.

Some observations fell from Isaacs J. in the case of *Taylor v. Taylor (10 C.L.R. 218 at p. 236)*, which well stated the accepted tradition of science—"Scientific research has an implication which mere learning does not possess. The latter is nothing more than the personal acquisition of knowledge already provided by the previous labour of mankind, and open to everyone desirous of sharing it. It adds nothing new to the common stock, though the area of partici-

pation is enlarged. But the vital point is that it involves no idea of passing on information, and is confined to mere improvement. Scientific research, on the other hand, as it is understood to-day, is the endeavour to bring to light some scientific truth, still unknown; to create original practical knowledge; to bring within the reach of mankind some fact which so far lies hidden in the breast of nature, and thereby to add to the forces available for the use and improvement of the whole human race. No one can reasonably conceive the successful results of scientific research being confined to the inquirer himself. Whether self-interest or the purest altruism animates him in his search, communication to the world at large of the outcome of his labours is, normally speaking, inevitable. That is the end aimed at. The attempted analogy between 'mere book-learning' and 'scientific research' therefore fails."

DISCUSSION

Mr. Justice Owen Dixon: The very able paper which we have listened to opens up questions of the deepest interest and of the greatest difficulty. The paper should evoke, and I hope will evoke, some discussion from the medical members of this gathering of the precise view which is taken of the practicability of enforcing and maintaining the traditional theory that scientific knowledge, particularly medical knowledge, should be thrown open, and at the same time conserving interests which are involved at each of the two edges of that principle.

The patent law has always been a problem. The notion of property in ideas is of comparatively recent growth, and it may be said that during the last century the greatest growth has taken place in all departments of thought in the direction of giving the people property in all ideas. The liberal doctrinaires of the Nineteenth Century were mostly against it, and in all patent reports there may be seen the dying prejudices of the Judges who had previous careers in politics, and who usually held that a patent was either not infringed or else that it was invalid; but the race seems to have died out at the beginning of this century, and at the present time the idiosyncrasies of judicial decisions seem to be transferred rather to the mental make-up of a particular man than to his previous history in politics—which may be satisfactory or not.

The views which Mr. Dean has put forward form part, really, or appear to me to form part, of a total problem which demands attention and has demanded attention for a very long time, and that is the complete revision of all our notions on this very difficult subject. Those who understand the subject have necessarily immersed themselves in study for a very long time, and immersion in the study of any particular subject (which is very true of the law), makes it very difficult for the mind to get completely adrift from the principle of the things which you have studied; and without immersing yourself in the study of it, it is almost impossible, I think, for any man to collect himself sufficiently to have any ideas whatever upon this very complicated subject.

No theoretical writer has contributed anything on the philosophical side of this subject; and I think most lawyers who are not specially interested in patent laws find them immensely difficult. When I was a young man at the Bar, Mr. Justice a'Beckett, who had a particularly detached mind was once trying a patent case, and, on hearing a book on patent law quoted and cited to him, inquired tenderly whether it was a reputable book, and, on hearing that it was a highly reputable book, he said he hardly thought so because a passage he had listened to sounded remarkably like common sense; and that, generally speaking, is the approach to most theories of the patent law by the uninitiated. As initiation grows it becomes more difficult to see what other forms or sets of ideas could be used from a practical point of view; and the sets of ideas which Mr. Dean has explained are the growth of that particular period of English history during which invention and the spread of knowledge, and the advancement of knowledge has been most rapid, and the growth has gone on step by step with that advance, and it is very probable that they represent the best ideas which we should be able to conjugate. They are particularly difficult ideas and they have been found increasingly difficult during the post-war period.

The Courts in America have shown great freedom in giving monopolies, and one suspects that they are influenced very largely by the interests which have such a great effect on American life. But the Courts in England seem to have not developed at all in any direction, but simply to have muddled about in the mess in which they have found the law, and to have shown no particular leaning in one direction or another, and very little interest in it.

The suggestion which Mr. Dean has made is probably the

wisest and most valuable, and most sensible solution of the problem, but it brings with it, to my mind, another great difficulty which always emerges in any discussion about public affairs. If it once became the habits of Governments to use the power in the Patents Act to acquire inventions, I am very much afraid that those who had political influence would make inventions for no other purpose than to have them acquired!

In conclusion, in opening this discussion, I should like to say that we all owe a very great debt to Mr. Dean for preparing a paper which involves not only very great experience of this subject, but must have involved a great deal of research in its composition.

Dr. Weigall: I rise more to ask a question than to give information. The medical men know something of this matter from two causes; one was that when Burroughs Wellcome obtained, whether by patent or copyright I am not sure, but they have the exclusive use of the word "Tabloid," the result being that if anybody goes into a chemist's shop and asks for a "Tabloid," he must be provided with Burroughs Wellcome's preparation. Burroughs Wellcome took care that we should all learn that by sending to every medical man in the British Empire a full account of the legal discussion which occurred around the uses of the word "Tabloid." It may be quite beside the subject whether it was done by patent or by copyright. (A voice: It is a trade mark). Then it does not come under either. At any rate, it covers a medical invention, and my first knowledge of the ethics of the medical man being interested in patent rights came to me at a very early stage in my professional career about forty years ago, when the B.M.A. of Victoria was split into two camps on the question whether Dr. O'Hara had the right to obtain a patent called "Silenette" which was a preparation put on the market under his name; and, as you medical gentlemen will remember, the whole Association was cleft in twain and it nearly ended in the wreck of the Association. Ultimately the matter dropped, but that was my first acquaintance with the fact that medical men were not supposed to be associated with patents of that sort.

Mr. L. B. Davies, M.Sc.: As a mere patent attorney, I feel rather like a spy suddenly discovered in the enemy's country, but I should like to congratulate Mr. Dean on the very able way in which he has covered the subject, and also for his practical suggestion at the end for the use of the section which I should be very glad to see used, because it has never been used.

In relation to patents I think very often the legal profession and the public generally, but particularly the legal profession, must surely get a wrong idea of the nature of inventions and their status; because, naturally, the patents that get before the Courts are the very poor ones. It is very noticeable, in looking through the cases that have been before the Courts, that almost always they relate to very small inventions, and that actually only about three in one thousand get before the Court. When you consider that that is only about one-tenth of the percentage of marriages that get before the Courts, it says something for the patent system! Just as a lawyer, particularly a divorce lawyer gets to be a little bit cynical about marriage, and probably thinks that marriages are very often unsuccessful, so he may be apt to think that although in business people may not always use opportunities (and in other spheres they always do) in relation to inventions, the lawyer must get the same outlook somewhat because the inventions that get before the Court are the ones that are fundamentally doubtful. If an invention is really novel, and if the specification is properly drawn (and sometimes they are), what happens is this: a man is threatened with an infringement action and he goes to his advisers and they tell him "You are infringing; your patent appears to be invalid," and he stops infringing. That happens probably fifty times to every time when his advisers tell him "Probably your validity is doubtful, and you had better have a fight." So that you cannot judge the status of inventions by the cases which get before the Courts.

Mr. Dean pointed out that people were not sufficiently public-spirited to fight patents against big corporations; but as against that, or as an explanation of why that may not always be necessary, it must be remembered that if a man holds a pistol at your head you have two things you can do, one is to invoke legal assistance, and the other is simply to say to him, "It is not loaded and I am not worrying." That is what happens in a great many cases when patents are involved, and, whether they are owned by big corporations or not, the infringer simply takes no notice and goes on infringing, and the big corporations do not want to get into Court and have one of their big patents upset because that would reflect on the status of their remaining ones.

The last point I want to touch on is that of scientific property or the proposed protection to scientific discoveries. I do not think that it is a practical proposition, neither did

that committee in Australia think that it was, in the sense that it is ever likely to be brought into existence in Australia; but we did think that it would be quite possible to devise legislation which could be carried into effect if it was required; but I do not think that it was required. Because the scientist, as a rule, does not want that. The scientist is content to give his work for the great honour of being recognized as the discoverer; but while the scientist is willing to give his discoveries, just as the medical man has, I think it is quite a different matter for other people to say that the discoverer should not be rewarded. That is purely a matter for the discoverer to say.

For instance, when copyright was being considered a fight raged for about one hundred and fifty years as to whether any form of protection could be given to copyright, and one of the leading statesmen in Great Britain said that the products of the minds of men of genius were gifts of God, and as such should not be the subject of personal property. It always seemed to me that the inference from that was that anything which was a fit subject for personal property came from the opposite source which was more closely associated with trade and industry.

Dr. Murray Morton: I should like to join in the thanks to Mr. Dean for his very excellent paper. It has been educational to us. We think it would be rather premature for us to discuss it, but he has brought us right up to date in the history of the subject, and has even taught us the correct pronunciation of the word "Patent."

My own personal knowledge of the subject is very scanty. We have felt the necessity for something being done for a very long time; and, of course, there have been certain very deserving workers in science who might be quoted in this connection. For instance, there was the most remarkable case of Sir Donald Ross who made the discovery that the mosquito was the cause of malaria, and yet died in poverty, and, in his old age a subscription was made for him by the British Medical Journal to support him in his declining years. It does seem very unfair that a man who had made such an important discovery as that for the relief of human suffering and the benefit of human life should be unrewarded when a man who has invented a method of putting a piece of rubber on the end of a lead pencil makes a fortune.

Then we had the provision that no medical discovery should be patented and that every medical discovery should be thrown open to humanity at large. So that between the two we seem to be at an impasse.

Mr. Sproule: I join with those who thank Mr. Dean for the very informative paper he has delivered, which must have cost him a great deal of hard work. I have never considered any of the problems that he put before us in connection with medical patents at all. In regard to his last suggestion of the acquisition of patents by the Government for the common benefit, I have never heard of it being done in regard to any medical patent; but I think the State of Victoria does provide an example of that being done in a remarkable way when the cyanide process for extracting gold from ores was introduced in Victoria. The first thing that met the people who started to use it was a threat of legal action from the proprietors of the patent. There was enormous litigation commenced, and I do not know if it ever got to an end, because the State of Victoria stepped in and bought the patents and threw them open to the industry. I believe it had a tremendous effect on the Victorian gold mining industry. That is the only instance I know of a patent being bought by the Government for the benefit of the people at large.

Dr. Albiston: One aspect of Mr. Dean's paper has been brought to my notice within fairly recent times, that is the position of the research worker in relation to the exploitation of his discoveries by industry and the inevitable distribution of benefits which result therefrom.

It is quite true to say, that the research worker does not require the incentive of monetary gain in order to impel him to pursue his studies; but the research worker in all countries of the world, with the possible exception of Russia, does definitely suffer from the lack of funds whereby he can carry on his research. Research workers are hampered continually by inadequate means for purchasing apparatus, and also in regard to means of livelihood, because most of the salaries of research workers, even the holders of distinguished degrees, are very much lower than their col-

It is sometimes the case that a research worker is unleagues in the same profession who are in actual practice. able, through lack of private means, to pursue any research at all. In London, under the auspices of the Lister Institute, a man who feels that he can do some good research is sometimes given a bench and told that he can go ahead, but if he has no private income or financial means, he is "stumped" from the word "go." I will mention as an instance of that, the fate of Dr. W. J. Penfold, who commenced research into some subject or other under such circumstances that he abandoned his private practice in England

for the purposes of research, and after a certain occurrence he became discouraged and died through an injection of morphia. He was a man who thought that he would be better employed in trying to find out different things and in trying to put into practice principles which were so little understood. He was given a bench by the Lister Institute and for a year he had to support himself and his continuance in the Institute depended on his success in that research work; because if a man does not succeed in his research he is not permitted to continue.

Professor Robertson, of Adelaide, published a series of papers and apparently it was a very sore point with him, because he suggested that the time had come when the research worker, in self defence, would be impelled to organize himself and his colleagues in such a way that they would have some means of placing the results of their research on an industrial and commercial basis so that some return would accrue to them for their discoveries. I do not know what figures he quoted, but it is the sort of thing that one can easily imagine is true, that millions of pounds have been made through industry by reason of the distribution of research and not a penny, or at any rate a very small proportion of it, has been returned to the research worker himself. The chief difficulty with research workers is this, not that they have no reward personally for their discoveries, but they require additional funds for carrying on research, and I think that sooner or later it will be the duty of any State or any Government to see that the research workers in that particular country or State are adequately provided for.

At present one sees the tremendous sum of money voted by public subscription towards one particular form of research, such as the present Cancer Research Fund which is occupying the public mind. The money is available once public interest is enlisted, but it seems to me that in connection with Cancer Research it is a very one-sided affair, and that there are many other fields which are well deserving of financial support from the same source, but which are getting none at all.

Professor Robertson rather despaired of anything being achieved in a commercial civilization, and he looked rather far forward to a time when this civilization will collapse, and when another civilization not based on private profits would prevail; but I do not think that the suggestion that Mr. Dean made that the patent law is likely to offer a solution would be as adequate as, perhaps, the taxation of indus-

try or the taxation of the community generally to provide a sum for research work in any particular State.

The Chairman: If there are no further contributors to the debate, before asking Mr. Dean to reply, personally I would like to thank him for his extraordinarily deep and interesting address. To an ordinary man in active practice it is inherently repugnant to consider any form of exclusion. It is contrary to the basic Hippocratic oath under which we all profess to practise; and one shudders to contemplate what effect any form of limitation would have on the work of a man like Pasteur, which was individual work, the anaesthetic work of Simpson, and the great individual services of other men. We cannot contemplate what any form of limitation, legal or otherwise, would have meant to the world.

Mr. Dean (in reply): There is very little more to be said on most of the matters raised by the paper which I read.

It has been a matter of interest to me to find out that there is no strong medical objection to patenting in respect of medical discoveries; I thought it may be that some members of the profession might put before us to-night cases in which it has been found definitely detrimental to medical practice that there were patents in existence covering certain preparations or substances or instruments, or other medical devices. No such cases have been put, and I can only conclude that the granting of patents has not created any difficulties in this field and that the only difficulties are those which rather concern the medical research worker than the medical practitioner, or the person who uses medical appliances and implements.

As to the specific matters referred to: Mr. Justice Dixon has raised the general question of whether our patent law is on right lines at all. Of course that is not a subject which I care to endeavour to pursue here, even if I had any views about it worth stating; but we have to take for our present purpose the patent law as it is, and to ask whether that patent law as it exists in relation to other things is capable of limitation in any way to suit the needs, if any, of medical practitioners or the medical profession generally. I think the objection raised by Mr. Justice Dixon to the suggested exercise of the power of expropriation of medical patents is one that we can perhaps hardly recognize, namely the possibility that people may devise inventions in order that Governments might procure them. All systems are open to graft of various kinds; but I think the more important thing is to have the record of the fact that there is that power there and it may be exercised in case it was found

that a patent was definitely against the relief of human suffering.

Dr. Weigall raised the question of trade names and their use, and instanced "Tabloid" by Burroughs Wellcome. It is an interesting question, and it was one which at one stage I had thought of incorporating in this paper, not because it was under the title under which I was speaking, but because it was of some interest; but I decided it was better to limit it to one particular matter. The word "Tabloid" happens to have been invented by Burroughs Wellcome many years ago and registered as a trade mark under the Trade Marks Act in England in Australia. It has been litigated upon in England on several occasions and has definitely been settled as the trade mark of the preparations of that firm.

The question of scientific research raised by several of the speakers, particularly by Dr. Albiston, is an interesting one as to whether or not some means can be devised whereby industry should pay research workers for their discoveries to the extent to which their discoveries are made use of by industry subsequent to their being made. That does not deal with the question of adequate funds for research workers who might hit upon something. It is quite a case of *ex post facto* remuneration and would only be available in cases where a particular discovery did happen to have application to industry or in some commercial field.

Dr. Morton referred to one instance, that of Dr. Ross, who discovered that the cause of malaria was the mosquito and who died in poverty. Numerous other illustrations of the same kind could be given; but the question is, who is to reward such a person? It seems to me that if any reward is to be undertaken it must be outside patent laws and must be a matter of government remuneration.

I think that there are no other particular matters raised that I desire to refer to specifically; but I am very much indebted to those of you gentlemen who have expressed some appreciation of my poor efforts in the preparation of this Paper. I was afraid that I had made it more technical than I originally intended to but I consoled myself by reflecting that just as it is not a bad thing for a lawyer for a time to see something of the technique of a medical man when medical topics are before us, so perhaps it may be even illuminating for the medical man to see some of the principles of law upon specific topics in operation.

I thank you, gentlemen, for the kind remarks that have been made about the Paper in general and, so far as I have

understood, there are no other specific matters to which I desire to refer.

Mr. Wilbur Ham, K.C.: I have much pleasure in proposing a vote of thanks to Mr. Dean for his interesting and illuminative Paper. His fellow members at the Bar who have had the honor to confer with Mr. Dean recognize his qualifications to speak on this subject.

I do not propose to traverse the subject that he has so ably dealt with, but I do suggest that one of the reasons why so little has been made of scientific discovery and medical discovery or invention, is not so much the defects of the patent law or to indifference on the part of Judges or the legislature to that very important branch of discovery; but, apart altogether from technical difficulties, of dissociating discovery which is unpatentable from invention which is patentable, there stands this, that the noble convention of the medical profession has been not to retain to the individual personal property in the profits of invention or discovery, or whatever it may be, but to allow it to remain open to mankind, and it is because the medical man and the medical profession as a whole does not claim personal property in its inventions that that subject has not been particularly brought into prominence either in the Courts or in the legislature. I feel that we as lawyers who are so frequently concerned in cases in which people are seeking every benefit for themselves that they can, and very often seeking benefits for themselves which they are not justly entitled to, that we cannot let this occasion pass without expressing our unstinted and generous admiration for the medical profession which has set up this noble convention before mankind, that no matter what the invention may be, it may be by a poor man and a man who has devoted infinite labor to it, it is thrown open to mankind without the slightest hope or expectation of reward. I feel that although there is no doubt that in scientific discoveries and in medical discoveries and inventions, if invention be the correct term, there is no reward given by patents largely because it never occurs to the man who does it to seek personal reward or to seek a patent for it. But there it is, open to mankind. For that reason the question of whether such men are entitled to, or should under the law get, protection has not been so much illustrated by decisions as one would have expected if, instead of throwing the thing open to mankind without hope of personal reward, they had sought to make the most they could out of it. However that may be, I desire, with, I am sure, the approval of the

whole meeting to tender to you, Mr. Dean, our sincere thanks for your most interesting and instructive Paper.

Dr. Ostermeyer: I have very much pleasure in seconding the vote of thanks to Mr. Dean. He has brought into very vivid contrast medical angles and scientific angles as well as legal aspects of very important matters. It is very interesting to a medical man to hear from him the nature of a patent as applied to a medical discovery. When he traced the origin of the Statute of Monopolies from the time of James I it struck me as an extraordinary thing, as showing the profound commonsense of English law, when that Statute of Monopolies debarred monopolies from obtaining favor or reward; from that Statute we had Judge-made laws, because they have been made largely by judicial decision, and the Statute laws came later.

Coming to some of the points raised by Mr. Dean and more particularly to a question raised by Dr. Weigall, there is no doubt that commerce and industry are very secret but a patent-medicine patent is not a secret medicine at all; the patent has to be specified; the inventor has to show how much of each ingredient is in it. It is the trade name that is the important point. For instance, it was the astuteness of Burroughs Wellcome in copyrighting the trade mark "Tabloid" as a trade name that was so successful. You can call a drug "Aspirin," that is a trade name, but Aspirin is really acetyl-salicylic acid and is known the world over as Aspirin, but when it is called "Saletin," "Salicetin," "Acetysal" and "Zaxa" that is where the real money lies because once you obtain a trade name you can put into it what you like, and you can change it when you like, and you have not got to divulge it to the world. That is the real astuteness displayed.

Mr. Justice Dixon referred to what might happen if the Commonwealth could acquire patents. How that will be exercised is quite another matter. The money behind these great firms such as Burroughs Wellcome is immense. Some years ago there was a Royal Commission appointed, dealing with drugs, cures and foods, I think it was in 1907, in which I think Australia took a part, and its report is a wonderful publication. In 1912 there was a Special Committee appointed by the House of Commons to inquire into a similar question and the revelations there were astounding. In America there are huge proprietary medicine companies who advertise in thousands of newspapers, and this is a sample of such contracts:—"This contract may be cancelled if the United States of America

or any State of the United States of America enacts a law detrimental to the interests of this particular article." That is pretty strong. Here is another one:—"This contract may be cancelled if there is permitted to appear in your columns, whether in the reading columns or otherwise, any matter injurious to the interests of this article." One can easily see the immense political power that there is behind the proprietary medicine trade in America.

Sir Joseph Beecham, of Beecham's Pills fame, was a witness before the House of Commons Committee, and a member of the Committee asked, "How much do you spend on advertising a year, Sir Joseph?" and Sir Joseph replied, "I did not expect this question, but I think it is £100,000 a year." So you can see the immense power of the press that is behind these remedies.

Mr. Dean referred to what is a medical discovery. It is not the discovery of a substance but it is the discovery of the qualities of a substance. Chemists knew that chloroform would anaesthetize people, but did Simpson get anything out of it? Not a penny. Roentgen discovered the X-ray; did he get anything out of it? Not a penny.

It is very interesting to compare the United States and Europe. Mr. Dean referred to the discovery of principles as a patent, but the principle is the seed from which all the others grow and it is a curious anomaly that the principle is so ignored.

The vote of thanks was carried by acclamation.