TO CONTRIBUTORS.

OUR contributors are reminded that prolixity is a great bar to publication, and, in consequence of the constant pressure upon space in every department of the JOURNAL, brevity of style and conciseness of statement greatly facilitate early publication. We are compelled to decline or hold over indefinitely a great number of communications, chiefly by reason of their unnecessary length.

AN ADDRESS

ON

THE STATE IN ITS RELATION TO THE MEDICAL PROFESSION.

*Delivered at the Tenth Annual Meeting of the Dublin Branch,
January 27th, 1887.*

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GENTLEMEN,—Members of the Dublin Branch of the British Medical Association, I have to thank you most heartily for the honour you have done me in choosing me as your President for the year 1887. It is a special honour, coveted by many, to occupy the chair of an important Society during the year of jubilee of the reign of Her Most Gracious Majesty.

I accept the honour you have conferred upon me, not only as a token of your appreciation of me personally, and of my humble efforts to serve my professional brethren, but also as a compliment to the office which I have the honour to hold under Her Majesty's Government. I think I may say that my connection with the British Medical Association and her almost twin-sister the Irish Medical Association, contributed in a great measure to that training in State medicine and public affairs which qualified me to undertake, and I hope in some measure satisfactorily to discharge, the duties which have been entrusted to me by the Government.

However opinions may differ as to the political relations which should exist between the various divisions of the United Kingdom, there can be no difference of opinion as to the relations which the members of the medical profession should bear to one another throughout the different portions of Her Majesty's dominions, and not only throughout the dependencies of the British Crown, but also throughout all the States of the world. These relations should be of perfect unity, and while it is our boast and our pride, as members of the British Medical Association, that we count our numbers by thousands, and that the sun, which never sets on the great British Empire, always shines on our Association in some part of the world, we have still a greater and more noble sensation in that we belong to a profession so united in all parts of the world, that we can meet in International Congress almost where we please, without any very special or permanent organisation being maintained for that purpose. No doubt our profession has its defects, like all other human institutions, but I think we may claim that our form of organisation, our power, our wish, our ability to do good, and the benefits we have conferred on mankind, are not inferior to any, and are I believe superior to nearly all professions in the world.

This universality of the profession and the community of its aims throughout the whole world make it of great importance that we should carefully consider the relations which the profession should bear to the State. I do not purpose here to review the relations which the State and the profession hold towards one another under other governments than our own; this has been done by others, and I may here refer to an interesting address delivered by Dr. (now Sir Charles) Cameron, at the first meeting of the Subsection of State Medicine of the Academy of Medicine in Ireland, at the opening of that Subsection in February 1883. A great deal of valuable information on this subject will also be found in the report on State medicine of the General Medical Council in 1869, where especial attention is given to the Prussian Sanitary Code. There are many other scattered references to this important subject to be found in foreign reports, etc., which it would take long to collect and arrange, and the result of the investigation of which I fear would prove far from satisfactory. I at present, therefore, will confine my remarks to the prin-

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incipal relations between the State and the profession as we find them at home.

I shall use the word State here in its widest sense, and shall use it to include not only the central Imperial power, but also all those smaller local governing bodies to which the Imperial authority has in the more constitutionally governed countries delegated so much of its authority. The State in this sense is represented in our Universities and Royal Colleges, and again in our Local Authorities, who exercise so many functions of administration which affect our comfort, our health, and even the continuance of our lives.

If the State is to act on the universally accepted maxim of promoting the "greatest happiness of the greatest number," it is clear that it must enter into most intimate relations with our profession. We have high political authority for stating that "the health of the people should be the first care of a government," and if this is so, and if *Sanitas sanitatis et omnia sanitas* is ever to become a reality and not merely the motto for the professors of a "policy of sewage," it is manifest that our profession must take a highly important position in the fabric of the State. Does our profession occupy such a position? I am afraid the answer must be that it does not, neither in this nor in any other country that I am aware of. We know that the relations between some of the continental States and the profession are much more intimate than they are here, and that even in some portions of the British Empire—notably India—these relations are of a more substantial nature than they are at home, but in no place does the profession receive that measure of State confidence and public respect to which its great public usefulness entitles it. When we consider the intimate relations which exist between the patient and his medical attendant, and the confidential nature of these relations, which can only be compared to those between the penitent and his confessor, it seems anomalous that the State should repose so little confidence in the profession as a whole. Why is this? I think it is largely attributable to the fact that the State has to deal with the profession as a whole. Now, having regard to the large number of its members, and its generally high character for education, humanity, and public spirit, it would appear that the profession is deserving of more confidence from the State than it receives. Why does it not receive this confidence? I think the answer is unfortunately too plain, and it is this: that hitherto the profession of medicine has contained within its ranks such a considerable number of men of inferior education, imperfect professional education, and comparatively low social stamp that the State, dreading contact with such unworthy members, declined to place confidence in a profession which contained them. I am thankful to say that these drawbacks to State confidence have been steadily, though slowly, diminishing, and, I think I may state with confidence, are now likely soon to disappear under the new system upon which we are about to enter.

Many of those who have not given sufficient attention to the question, think that these faults in our profession are owing to defects inherent in the profession itself. This is by no means the case; the fault mainly lies with the State, which has permitted certain authorities, upon which it had conferred great powers, to exercise those powers merely for the purpose of making money, by conferring diplomas certifying to sham qualifications which their holders never possessed.

These diplomas entitled their holders to the privileges of members of the profession in common with those who, after long and arduous study, had obtained qualifications through the high-class universities or superior medical corporations. I say this has been distinctly the fault of the State, from which these miserable traffickers in the sale of diplomas derived their power. The State is not yet free from blame in this matter, for although an Act of Parliament has recently been passed which will, if properly administered, put an end to this disreputable state of affairs, yet, practically, Parliament has refused to protect the public against the grosser forms of quackery. Dr. Bardsley, in his presidential address to the annual meeting of the Association, at Cheltenham, in 1837, said: "It is a humiliating circumstance that in this enlightened country quackery is openly protected by the Government, whilst in almost all the other states in Europe it is prohibited under severe penalties." Yet this is still true after the lapse of half a century, and persons without the faintest knowledge of medicine are allowed to trifle with the health of their dupes, practically free from all penalty. A person who pretends to be wealthy when he is not, and obtains credit by his pretence, is deemed to be a criminal, and prosecuted as an impostor who has obtained money or goods under false pretences; but the person who pretends to a knowledge of medicine, pretends to cure disease, and thereby endangers the health or life of his dupes, incurs no penalty whatever, but is treated in the same privileged fashion as fifty years ago.

The State will in future have no grounds for refusing confidence to our profession on the ground that it contains unworthy members; on the other hand, the profession may look with some suspicion on the State so long as "quackery is openly protected," and the State obtains a portion of its revenue from the sale of quack medicines.

The State has at last secured the profession against the admission of unworthy members, but I am bound to say that successive Parliaments which have dealt with this question have shown but little zeal in solving it, and would probably not have done so, had it not been for the persistent efforts of the British Medical Association, through its Medical Reform Committee, guided by the self-sacrificing and energetic labours of Dr. Edward Waters, who led the medical reformers to victory in 1886, after a fifty years' struggle, during one-half of which he was their active leader. It would not be an useful expenditure of time to trace the history of medical reform in connection with the Association for half a century, but, nevertheless, you will, I think, be interested in a short reference to the subject, which has a connection which few are aware of with an eminent Dublin man.

The Association was but one year old when Dr. Barlow, at the Bristol meeting in 1833, calling attention to this question, said:

"The state of the profession ought to be such, that all its branches should be in harmony with each other, cordially co-operating for the advancement of science and the public good. . . . But in the present political organisation of the profession, there are many disturbing forces which tend to weaken its energies, and to place individual interests, real or supposed, in collision with those duties which science and humanity enjoin. . . . The evils to which a complex and discordant state of the profession give rise. . . . are very generally felt, and must soon engage the attention of the Legislature, which, it is to be hoped, will give them a full and scrutinising investigation. By a forced and unnatural division of offices, the profession has been split into departments, each attempting to pursue a separate course, while the natural unity that characterises the whole has been too much overlooked. Each department has had assigned to it a separate superintendence, the aim of which has been to advance its interests without reference to the other branches, while there existed no institution for regulating and combining the whole, so as to adapt their several energies for their collective well-being and the public good. . . . What we now need is not a rectification of slight errors, but a general revision of the whole profession, and such an arrangement of it as would render the good of each branch compatible with the whole. . . . Government of the profession by separate and independent corporations has been fully tried, and has utterly failed. As experience can no longer be pleaded in its favour, it would now be wise to try whether that course which reason and sound policy dictate, might not be beneficially substituted; whether the establishment of one presiding institution in which all minor corporations should be consolidated, might not realise a system of adequate protection and efficient control such as the separate and independent authorities have never yet afforded. By the establishment of such an institution, no revolutionary changes need take place; each department continuing, as now, to exercise its functions to whatever extent the public exigencies might demand; but the adequacy of each branch to its allotted duties could be more effectively insured; collisions at once inconsistent and injurious could be prevented; equality of qualifications in each respective branch be promoted, so as to remove all necessity for partial restriction; freedom be thus given to individuals to practise as interest or inclination might incline; and that harmony be established among the several branches, which the public good, the interests of science, the collective welfare of the profession, and the happiness of the individuals composing it, imperatively demand; an arrangement of the profession which should accomplish these valuable purposes may yet be distant."—(*Transactions of the Provincial Medical and Surgical Association*, vol. ii, p. 28, *et seq.*, 1834.)

From this time forward until the year 1886, the Association pursued its purpose of insisting on such a measure of medical reform as would secure the abolition of the unseemly competition between licensing bodies, which had tended so much to degrade the profession of medicine, injure the public, and prevent State confidence in our opinion. This important subject was dealt with in many presidential addresses; and at the Bath meeting in 1838, Dr. Macartney, of Dublin, moved the appointment of the first Medical Reform Committee of the Association, the main duty of which was to prepare and present a petition to Parliament on behalf of the Association in favour of medical reform. The petition contained, among other matters, proposals for the appointment of examining boards for each division of the United Kingdom, which reform, the petition stated, would not disturb the "existing grades of the profession." The prayer of the petition was as follows:—

"Finally, your petitioners, confident that the time has arrived when the intervention of Parliament is imperatively called for to give to the medical profession a sound legal constitution, and deeply impressed with the conviction that an adequate and uniform education, with community of rights and privileges, constitutes the only sure basis on which to found such constitution, humbly beg that the necessary legislative enactments may be passed for establishing in each division of the United Kingdom one superintending body, founded on the same principles and governed by similar regulations, through whose examinations, and by whose licence alone, shall admission to the profession be in future attained."—(*Provincial Medical and Surgical Journal*, vol. viii, p. 42, *et seq.*)

It has taken well nigh half a century to carry out the principle of Dr. Macartney's proposal, and it is some satisfaction to us to know that our Branch of the Association may claim retrospectively the credit of having inaugurated the Medical Reform Committee of the British Medical Association. Dr. Macartney's committee seemed to me inclined to go a little too far towards what has been called the "one-portal system," and I believe a compromise has been arrived at by the Act of last year, which, with good administration by the newly constituted Medical Council, should accomplish all that is really necessary for the honour of the profession, and the welfare of the public. It is thus owing to the action of the Association that we have arrived at an arrangement by which, in future, the term "legally qualified medical practitioner" will mean a *bona fide* fully qualified medical practitioner, and entitle us to claim the full confidence of the State.

The medical profession has two principal relations to the public; namely, those comprised under the heads of the prevention of disease, and the cure of disease. While the duties under the former head have to be mainly performed towards the public in its collective capacity, those under the latter have to be mainly rendered by individual members of the profession to individual members of the public. While the relative scope of preventive and of curative medicine may be thus respectively defined in general terms, it is clear that preventive medicine must often be practised individually; as, for instance, when we advise as to family hygiene and healthy homes. Curative medicine may also be practised collectively where the poor law medical officer or the medical officer of a hospital or public institution treats large numbers of sick on an organised system of medical attendance. When viewed from a State stand-point this crossing of the functions of the profession in its private and public capacities presents difficulties which must necessarily complicate the relations between the State and the profession.

These difficulties are not insurmountable, though their existence must be admitted by all persons, and indeed, a considerable number of them have been surmounted slowly and by a sort of quiet progressive development through the public medical system of Ireland.

There is no more suitable occasion than that of the meeting of the Dublin Branch of the British Medical Association, for the discussion of the problems of State medicine. Dublin has always been the home of State medicine; I have already pointed out that a Dublin man moved the first formal resolution in the British Medical Association in favour of medical reform, so again when the subject of sanitary reform was prominently brought before the Association by Dr. Jeffreys, the President of the Liverpool meeting in 1839, a strong deputation sent from Dublin by the Irish Medical Association was in attendance; this deputation consisted of Mr. Carmichael, Dr. Jacob, Dr. McDonnell and Dr. Henry Maunsell. The president on that occasion said:

"'Hygeia' was a subject in this country, comparatively speaking, neglected. . . . and this may be said without detracting from the great merits of those authors who have afforded aid to the student by their writings on this subject, namely, Dr. Southwood Smith, on the *Philosophy of Health*; Andrew Combe, on the *Principles of Philosophy*; R. Dunglison, on *Human Health*; Alexander Kilgour, on *Hygiene*; Hodgkin's Lectures, (*Transactions of the Provincial Medical and Surgical Association*, Vol. viii); and Garnet Dillon's letters on the Mortality of the Metropolis; and last, though not least in importance, our talented associate now present, Dr. Maunsell's recent pamphlet on *Political Medicine* (see *Dublin Medical Press*, February 6th, 1839).

Dublin still maintained the character gained for it by Henry Maunsell, and although the subject of State medicine was not neglected in presidential addresses at the annual meetings of the Association, it was not until the great Dublin meeting of the Association was held in 1867, under the presidency of Dr. Stokes, that the subject was taken up energetically, and assumed its place in the permanent programme of the Association. At this meeting, Dr. Henry Rumsey

moved his celebrated resolution, which was seconded by Dr. Alexander Patrick Stewart, and carried unanimously, namely: "That this Association do express its decided approval of the plan proposed by Dr. Farr, namely, the appointment of a registration medical officer in every registration district or group of districts, with medico-legal and sanitary functions, and pledges itself to support that measure, as the initiative step to a national organisation for purposes of State medicine."

On this followed another resolution, moved by Dr. A. P. Stewart, and seconded by Dr. Sibson: "That the Committee of Council be instructed to direct their early or special attention to the amendment of the sanitary laws; to invite the co-operation, for this end, of the Council of the National Association for the Promotion of Social Science; and to urge the Branches of this Association to promote the same object by local efforts, by representations to individual members of Parliament, and, if need be, by deputations to Her Majesty's Government." This was also unanimously adopted, and the Joint Committee on State Medicine of the British Medical and Social Science Associations was formed. This Committee, by memorialising the Government of the day (May 22nd, 1868), obtained the appointment of the Royal Sanitary Commission of 1869, upon whose report all important legislation regarding State medicine has since been based. Not only was the report of this Commission the foundation of the present sanitary system of the United Kingdom, but it may be said to have also modified very largely our system of local government, especially in rural districts; in fact, it was to meet the changing state of affairs promoted by this Commission that our old Poor-law boards were converted into Local Government Boards. Thus the present relations between the medical profession and the State, so far as civil duties for the prevention and cure of disease are concerned, may be said to have sprung from the Dublin meeting of the Association.

It is admitted by all political parties and by all classes of the community that the present system of local government in these countries is unsatisfactory. We all know that, by the common consent of all parties, and at an early period, some large measure of local government must be brought under the notice of, and be at no distant date passed into law by, the Legislature. Under these circumstances, it behoves our profession to see that, in any new system which may be established, ample provision is made for an efficient civil medical service in accordance with the main principles laid down by the Royal Sanitary Commission of 1869, and that none of those abuses and imperfections which have marred our present sanitary system (if system we can call it) should be perpetuated.

The recommendations of the Royal Sanitary Commission of 1869, now nearly eighteen years ago, were summarised by me in a paper which I had the honour of reading before the meeting of the British Association for the Advancement of Science at Belfast in the year 1874, as follows:—1. A codification, consolidation, and amendment of existing laws. 2. Convenient areas of administration, with easily workable sub-areas. 3. Uniform local authorities, without clashing of jurisdiction. 4. A complete executive organisation. 5. Constant supervision by the central authority. 6. Security for a certain amount of independence for the local officers from the local authorities.

I then also made certain suggestions which appeared to me at that time suitable for carrying out the recommendations of the Royal Commission. Many things have happened since that time. The laws regarding public health have been codified; an attempt has been made, and in Ireland very successfully, to provide convenient areas of administration; uniform local authorities have not, I regret to say, been yet secured, and here it is, as I have already stated, that all political parties are agreed that amendment is required. I am sorry to say that the complete organisation does not exist anywhere in the United Kingdom except in Ireland, where it really is complete, though possibly not working as perfectly as we could desire. The Central Control is vastly improved compared with what it was in 1874, and in Ireland we have now provincial medical inspectors of the Local Government Board exactly of the class required for the supervision of our State medicine system. I am afraid the sixth point, namely, security for the independence of local officers, has not yet been arrived at anywhere, but the protection afforded by the provincial inspectors in Ireland must have done a great deal in this direction.

I have repeatedly referred to the Public Medical Service of Ireland as a model to be studied by those who wish to construct a perfect system of State medicine. It is quite unnecessary for me to discuss the history and development of this important organisation. Many years ago it was dealt with by my friend the late Dr. Thomas Isler Maunsell, and again has been recently fully discussed and considered from every point of view by Dr. Mapother in his able address in Public Medicine at the Brighton meeting of the Association in August last. It is,

however, well that we should keep in our mind's eye, and that the public should know, both here and elsewhere, that we have in Ireland a public medical service which, so far as I know, approaches more nearly to theoretical perfection than that of any other country.

Ireland is divided into 161 unions, each with its central hospital, which hospital has its own medical officers and staff; each of these unions is divided into "dispensary districts;" the old name is still retained, although these districts are really areas for nearly all public medical purposes. Of these districts there are nearly 800, each of which has its medical officers, who—and here is the great superiority of the Irish system—is medical officer of health, medical attendant on the sick poor, public vaccinator, and registrar of births and deaths, thus combining in his own person all the public medical duties of his district. It is unfortunate he is called "dispensary medical officer;" it would be much better he was called "district medical officer," for such he now is. In order to connect this officer with the centre of local government of his district, he is the officer of the board of guardians, which is the rural sanitary authority of the union in which his district is situated; in case his district is in whole or in part situated within the boundaries of an urban sanitary district, he is *ex officio* the officer of the urban sanitary authority. No doubt, in this case, there is that want of uniformity in local authorities, with a possible clashing of jurisdiction which was so condemned by the Royal Sanitary Commission. It is to be hoped that this difficulty will be overcome by impending legislation for local government. Again, in the case of the Rural Sanitary Districts, we have a consulting medical officer of health, and, in Urban Districts, also a similar officer, together with a superintendent medical officer of health. These officers have not hitherto occupied such an important position as, in my opinion, they should hold. They should be at the call of all the district officers for special advice in all difficult cases, and should have a superintending function in all districts, just as the superintendent medical officer now has in some of the urban districts. These officers, it is to be hoped, will, in course of time, be specialists in State Medicine, and largely fill the position suggested by Dr. Rumsey's famous Dublin resolution. There is also, for each union, a superintendent registrar of births and deaths, whose office is at the union workhouse, who collects and takes charge of the returns made by the district registrars. There is also a hospital for the treatment of those cases which cannot be properly dealt with by the dispensary medical officer in the patients' homes. There are many defects in the working of this theoretically perfect system, but these can be removed by improved local administration, which, I am afraid, will not be attained until a reform in our system of local government takes place.

In addition to the local State medicine organisation which I have described, the Local Government Board has recently established provincial medical inspectors, one for each of the four provinces into which Ireland is divided, to look after and superintend all medical matters in his district, thus securing the constant supervision by the central authority so much insisted on by all promoters of sanitary reform. These provincial inspectors have their head in the central office in Dublin. I have watched the gradual development of this service for many years until it has reached its present almost fully organised condition. I have for some years been in contact with nearly all its parts as head of the statistical arm of the State Medical Service of Ireland. I can affirm with considerable confidence that a more complete and efficient State Civil Medical Service does not exist in the world. No one knows its weak points and failings better than I do; nevertheless, I think I may safely say that when these failings so seldom come before the public they cannot be very gross or numerous.

This important service is not nearly so much appreciated as it should be, and consequently is not made sufficiently attractive in pay or position to induce superior men to enter it in sufficient numbers. A "dispensary doctor" is too liable to be looked down upon. It is hard to say why, unless it be that Sir Dominic Corrigan's plan of admitting men to the service only through a special examination was rejected. There can be no doubt that the qualifications required of a dispensary medical officer should be superior to those for any other service, not—I hope my military friends will excuse me—excepting the military and naval medical services. When we contrast the conditions of admission to the medical profession in this country and the state of our public medical service with those described by Dr. Billings in his address in medicine at Brighton as prevailing in the United States of America, we may well be thankful that our profession is free from the freedom which it enjoys among our Transatlantic cousins in that great Republic whose institutions in so many respects are nearer akin to our own than to any others in the world.

Time does not permit me here to refer to the other great medical services of the State in the Army and Navy, but I think many of the remarks I have made may, with little alteration, be applied with truth to those services. There the necessity of the services has made the organisation and control more complete than in the Civil Medical Service, and while the Civil Medical Service requires some militarism introduced into it, to make it more systematic in its working, I think, as a civil servant, I may be allowed to suggest that a little more of the individual responsibility found in the Civil Medical Service might with advantage be introduced into the military medical service.

Besides the points connected with the State medical services with which I have dealt, there is another specially brought forward in Dr. Rumsey's resolution, to which I have already called attention, and which has, indeed, largely served as a text for this address, namely, the proposal of Dr. Farr (*Vital Statistics*, by William Farr, edited by Noel Humphreys, London, 1885, p. 225), to appoint superintending registration officers, who should investigate matters connected with public medicine—such as epidemics, etc., but more especially to act as medical experts at coroners' inquiries. I do not think, in the present day, anyone will be found to advocate exactly Dr. Farr's proposal, but nevertheless I think all the members of our profession agree, and a great number of the public will support them, in the opinion that our present system of conducting medico-legal inquiries is a scandal which should be got rid of. The proceedings in coroners' courts, looked at from a medical point of view, would in many cases be ludicrous, if they were not melancholy in the extreme. I am not an advocate of the principle that coroners should be members of the medical profession; on the contrary, I think coroners should be lawyers, but I am of opinion that there should be regularly appointed medical assessors, not only to coroners' courts, but to all courts of justice where medical evidence is received. I believe this expert medical evidence would be best provided by either the superintendent medical officer of health or by inspecting officers of the Local Government Board. I think it more than probable that the former would be found to be the proper officers for the purpose. I do not propose at present further to discuss this very difficult question. It must, however be borne in mind by all who desire to see the public health preserved and improved, to have the sick poor properly provided for, and to have justice properly administered where medical evidence is essential to the arrival at a correct judicial decision—that changes in local government are the most likely means by which these objects can be secured. We have reason to hope that in the impending changes all these matters will be carefully considered and earnestly dealt with if only our profession, through its public medical bodies, make proper representations in proper time. I hope I may be excused if I may seem to have spent much time in dealing with these points; my apology must be the great importance of the subjects discussed, and the selfish pleasure I take in dealing with questions to which I have devoted a considerable portion of my time and attention, and upon which I can speak with some degree of authority.

We are now approaching a great gathering of the profession in Dublin, which naturally reminds us of the meeting of our Association in Dublin in 1867, when so many of the questions I have been speaking of were in their infancy, and when our Association, though over thirty years old, was small as compared with what it is now. It numbered then less than four thousand, now it is more than twelve thousand strong. The Dublin meeting of 1867 was the greatest ever held up to its time, and it was long before it was surpassed; let the Dublin meeting of 1887, the jubilee year of our most gracious Queen, still further surpass all its predecessors, if that be possible. As President of the Dublin Branch, I can promise our Fellow Associates a hearty welcome when they come to visit us in August of this year.

THE SECRET REMEDIES OF BERLIN.—In the list of "secret remedies" of which the Berlin police have published a series of analyses in the daily press are the following: "Bauer's Consumption Cure" consists of a decoction of malt and apples; "Volkmann's Drunkards' Cure" is a mixture of gentian and lycopodium; "Baretta's Stomach Powder" is a mixture of bicarbonate of soda, with cream of tartar, milk, sugar, sal ammoniac, chalk, and a trace of pepsin; "Harz's Mountain Tea" consists of a mixture of peppermint, lactuca, liquorice, sassafras, lavender, and milfoil.

TREATMENT OF TUBERCULOSIS.—Professor Potain prescribes the following mixture for tuberculous patients: Chloride of sodium, 10 grammes; bromide of sodium, 5 grammes; iodide of potassium, 1 gramme; distilled water, 100 grammes. The above ingredients to be dissolved, and administered in doses of one teaspoonful in a cup of milk every morning.

REPORT TO THE SCIENTIFIC GRANTS COMMITTEE OF THE BRITISH MEDICAL ASSOCIATION.

THE DURATION OF LIFE OF RED BLOOD-CORPUSCLES AFTER TRANSFUSION, IN ITS BEARING ON THE VALUE OF TRANSFUSION IN MAN.

By WILLIAM HUNTER, M.D. Ed.,
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THE question of the normal life-duration of red blood-corpuscles may be regarded at first sight as of comparatively little importance, either from a scientific or a clinical point of view. I propose to show in the present paper that such is far from being the case, and that a study of this subject is not only of scientific interest, but is one of prime practical importance when viewed in its relation to the important question of the value of transfusion of blood in man.

Numerous attempts have been made from time to time to ascertain the life-duration of red blood-corpuscles by transfusing the blood of one animal into the circulation of another, with corpuscles of different size or shape, and then endeavouring to note how long the foreign corpuscles remained discoverable in the body of their host. The first attempt of this nature made was by Marfels and Moleschott in 1856 (Virchow, *Archiv*, Bd. xxvii, p. 260, quoted by Panum), who stated that they could recognise the blood-corpuscles of the sheep in the circulation of the frog months after injection, and were hence of opinion that the normal duration of life of the red corpuscles must be a very long one. In the following year, Brown-Séquard (*Jl. de Physiologie*, i, 173-175) made some similar experiments, with somewhat anomalous results; for whilst the corpuscles of dogs and rabbits were recognisable by him months after their injection into fowls, on the other hand, those of the fowl were not to be found in the circulation of dogs or rabbits, even after the lapse of one hour.

It is now certain that the former of these observations were erroneous, since, as we now know from the numerous observations of Panum, Landois, Ponfick, and many others, the method of experiment employed was doomed from the outset to failure, the injection of blood derived from an animal of another species—that is, dissimilar blood—acting as a poison, causing rigors, fever, hæmoglobinuria, and, if in sufficient quantity, suppression of urine, and death; the blood-corpuscles of such blood breaking down, and giving up their hæmoglobin within a few hours after their injection. As may be readily understood, therefore, the success of such experiments has not been very great in throwing light on the life-duration of red corpuscles under normal conditions.

It is thus evident that the only way in which, by means of transfusion, any information can be obtained which will bear on this question of the normal life-duration of red blood-corpuscles is by transfusion of "similar" blood, that is, blood derived from an animal of the same species.

That the corpuscles of such blood continue to live—for a certain time, at least—in the body of their host is to be assumed from the results of some of the very earliest experiments on transfusion, such as those of Dr. Lower, in 1666, in which, by repeated bleedings, followed by transfusions, the whole of the blood of a small dog was completely removed, and replaced by the transfusion through its vessels of the entire mass of blood obtained from a much larger one; the smaller animal, nevertheless, after the operation, remaining apparently in perfect health, although all its own corpuscles must have been entirely lost.

The first observer, however, to make any direct attempt to ascertain the life-duration of such transplanted corpuscles was Panum, in 1863 (Virchow, *Archiv*, xxvii, p. 240). His method was crude and laborious; but, such as it was, it sufficed to furnish him with some data, accurate so far as they went. Panum calculated the number of corpuscles present at any time in the blood by withdrawing a portion of it, and estimating the specific gravity of the dehbilitated blood and