are (1) that the thrombus will grow over a larger area, and (2) that a portion will become detached and lead to embolism. To prevent the latter result, complete rest is imperative. But it is necessary to take steps to prevent the policy of rest reducing the vigour of the circulation to such an extent as to favour the extension of the thrombus. Hence it would seem wise, in cases of chlorosis accompanied by optic neuritis, to supplement the administration of iron by cardiac tonics, as digitalis and by diffusible stimulants, more particularly ammonia. When a passive thrombus has been fully formed, its tendency is not to detachment but to organization, and thus, as soon as the above measures have afforded a reasonable guarantee that further extension of the thrombus is improbable, complete rest should no longer be enforced. The indication now is to increase the vigour of those vital processes on which organization and practical removal of the thrombus depends. Among these is a reasonable amount of exercise, which, the fear of embolism having been reduced to a minimum, may now be safely and beneficially ordered and pursued.

NOTES AND REFERENCES.

The original cases of optic neuritis in chlorosis recorded by Sir William Gowers, together with a statement of his views regarding the influence of hypermetropia in association with the abnormal state of the blood as a factor in the causation of the neuritis, are to be found in his *Medical Ophthalmoscopy*, and in the *BRITISH MEDICAL JOURNAL*, 1881, vol. i, p. 796. A paper by Saundby and Eales, in which the influence of hypermetropia in the same direction is discussed, appeared in the *Ophthalmic Review*, September, 1882; see also Saundby in *Birmingham Medical Review*, November, 1885. Sir William Broadbent (*Trans. Ophthalm. Society*, 1880-81, p. 108) has reported two cases of young women in whom optic neuritis was associated with amenorrhœa: one of these was fatal, and "the only morbid appearance in the brain was effusion into the ventricles." Cases of double optic neuritis with a similar *post-mortem* result are included in a paper by Williamson and Roberts (*Lancet*, 1900, vol. i, p. 1350). Examples of severe cerebral disturbance and optic neuritis in chlorosis with intracranial thrombosis on necropsy are recorded by Bristowe (*Clinical Lectures and Essays on Disease of the Nervous System*). Sir Dyce Duckworth (*BRITISH MEDICAL JOURNAL*, 1896, vol. i, p. 149), Lee Dickinson (*Clinical Society's Trans.*, 1896, vol. xxix, p. 63), and A. Brayton Ball (*Trans. Assoc. of American Physicians*, 1889, vol. iv, p. 57). Cases with similar symptoms terminating in recovery have been reported by Bristowe (*loc. cit.*) and by Buzzard (*BRITISH MEDICAL JOURNAL*, 1896, vol. i, p. 150). Instances of fatal cerebral thrombosis without optic neuritis are noted by Sir R. Douglas Powell (*Lancet*, 1888, vol. ii, p. 1124), and by Stephen Mackenzie (*Practitioner*, February, 1898); see also Bravton Ball's collected cases. Professor Welch's article, in which the whole question of intracranial thrombosis in chlorosis is discussed, is in Clifford Allbutt's *System of Medicine*, vol. vi, p. 200, and a list of published cases is given at p. 227. Clifford Allbutt himself deals with the question in vol. v, p. 508. Instances of double optic neuritis with more or less cerebral disturbance in patients with chlorosis are recorded by Wardrop Griffith (*BRITISH MEDICAL JOURNAL*, June 9th, 1898), Burton-Fanning (*ibid.*, 1894, vol. i, 1354), and Crawford Thomson (*ibid.*, 1893), the latter including a case in which there was diplopia. One of Lee Dickinson's patients, in addition to optic neuritis and hemiplegia, had a "varying squint," and in another there was inequality of the pupils. In one of Griffith's cases the patient was chlorotic, and had extreme neuro retinitis without any other evidence of intracranial lesion. While under treatment she fell on the ice and struck her head. Three weeks after this she became delirious, with febrile temperatures and dilated pupils. The necropsy showed a tumour of the occipital lobe, with some evidences of meningitis at the base of the brain—an illustration that chlorosis in association with double optic neuritis does not exclude cerebral tumour from the diagnosis. An instance of double optic neuritis and sixth nerve paralysis, practically identical with the one on which the present paper is founded, is reported by Diabellia (quoted in *Lancet*, September 19th, 1896). Another is described by Sir William Gowers (*Transactions of the Ophthalmological Society*, 1880-81, p. 115); the symptoms in this instance included occipital pain and vomiting, and the diagnosis suggested was a transient localised meningitis. Several of the cases reported as instances of optic neuritis in chlorosis have also suffered from severe pain in the head and from vomiting. Burton-Fanning (*loc. cit.*) relates such a case, and suggests that the absence of fever, etc., excludes basal meningitis from the diagnosis; he proposes increased intracranial pressure from oedema of the brain as the probable cause. It may be suggested that thrombosis is adequate to explain all these facts. The rarity of sinus thrombosis as a condition producing severe symptoms may be judged from the fact that Byrom Bramwell (*Anæmia and Diseases of the Ductless Glands*, 1899) met with no example in an experience of 314 cases of chlorosis. The references to cases of middle-ear disease with ocular symptoms are as follows: Newton Pitt (*BRITISH MEDICAL JOURNAL*, 1890, vol. i, p. 642, *seq.*); Marmaduke Shield (*Archives of Otolaryngology*, 1892, p. 283); Whiting (*ibid.*, 1898, No. 6); Clarence A. Veasey (*the Ophthalmic Record*, June, 1899); Mayo Collier (*Transactions of the Laryngological and Otolaryngological Society of Great Britain*, July, 1901); Macowen (*Pyogenic Diseases of the Brain and Spinal Cord*); Barr (*Manual of Diseases of the Ear*, second edition); the last-named mentions paralysis, either of the third or sixth nerve, as a result of thrombosis of the cavernous sinus. With these references may be associated instances in which middle-ear disease was complicated by an ocular paralysis without optic neuritis. Two cases of this character have been recorded by Professor F. de Lapersonne (*Medicine Review*, September, 1901, p. 623). A further reference of interest in connexion with the argument advanced in the present paper is an account of a case of enteric fever in which a unilateral third nerve palsy developed comparatively early, and the patient at a later date suffered from thrombosis of the right femoral vein. No other obvious cerebral disturbance accompanied the paresis, and lum-

bar puncture gave a clear fluid free from organisms. The possibility of a limited meningitis must of course be accepted, but in the circumstances thrombosis can hardly be denied a hearing. The case is recorded by Chas. P. Emerson in the *Johns Hopkins Hospital Reports* 1900, vol. viii, p. 397.

ARSENIC IN THE HAIR OF BERI-BERI PATIENTS FROM PENANG.

BY MAJOR RONALD ROSS, F.R.C.S., F.R.S.,
Liverpool School of Tropical Medicine.

SINCE Newall and Prytherch pointed out the similarity to beri-beri of the Chester cases of peripheral neuritis, and Reynolds demonstrated that the Manchester outbreak was due to chronic arsenical poisoning, the question whether many cases ascribed in the tropics to beri-beri may not be caused by arsenic has been much discussed. A little while ago Reynolds and myself published a case of so-called beri-beri from Sierra Leone, in the hair of which arsenic had been found by Dr. Dixon Mann.¹

Recently I received twenty samples of hair from beri-beri patients, mostly Chinese, sent to me for analysis by Dr. Herbert Fry, of the Government General Hospital, Penang, a known beri-beri locality, and one sample from Dr. Dalgetty, of Adampur, South Sylhet, India. The samples were analysed by Professor Dixon Mann, and he has now reported that 6 out of the 20 samples from Penang contained arsenic, 2 yielded "more than a trace," 2 yielded "a trace," 2 yielded a "minute trace," and the rest yielded none at all. The case from Adampur was negative.

Dr. Dixon Mann adds, "In relation to arsenic the results are indefinite as regards its being a causal agent; only 6 cases out of 21 gave positive evidence. In all the cases the quantity of hair sent was quite sufficient to have yielded evidence of arsenic had it been present. The fact that arsenic was present in some cases is not without significance, however, and I suppose the question must for the present remain open." Certainly the result shows that some of the cases had been in contact with arsenic.

But after receiving the report, I detected a curious apparent relation between the presence of arsenic and the duration of the cases from Penang. Nearly all the positive cases were recent, and nearly all the negative cases were older. The following list gives the cases arranged in order of duration, according to some brief notes sent by Dr. Fry:

	Duration of Case.	Arsenic.
1	5 days	Minute trace
2	15 days	Trace
3	"	Trace
4	"	More than trace
5	"	None
6	20 days	Minute trace
7	"	None
8	1 month	"
9	"	"
10	"	"
11	2 months	"
12	"	"
13	"	"
14	"	"
15	"	"
16	3 months	"
17	"	"
18	5 months	More than trace
19	"	None
20	2 years	"

This result certainly augments the evidence in favour of the cases being arsenical, since it suggests that the arsenic was present only at a certain stage of the disease. But the relation may be only a coincidence.

I asked Professor Dixon Mann whether, even in undoubted cases of arsenical poisoning, arsenic is sure to be found in the hair. He replied that in very recent cases it might not have time to get there; while in old cases the arsenicated hair may be shed or cut away. Hence in a Chinaman's queue the arsenicated portion may occur some way down. Dr. Fry does not mention from what part he took his samples, and this may have much to do with the result. I suggest that samples should be taken from near the scalp and that the duration of the case and other details be carefully inquired into. My warm thanks are due to Drs. Fry and Dalgetty for the samples, and to Professor Dixon Mann for the time and trouble he has expended on the analysis.

The chances against five of the positive cases being found in the first six cases by mere coincidence have been calculated out for me by the Calculus of Probabilities and amount to 2,583 to 1. Hence the probability is very strong that the Penang beri-beri is arsenical, especially when we know that the people there largely work in tin manufactories and are brought closely into contact with arsenic.

REFERENCE.

1 BRITISH MEDICAL JOURNAL, October 5th, 1901.

CONTRACT PRACTICE: THE EVIL AND ITS REMEDY.*

By A. BAILLIE MCKEE, M.B.,
Bristol.

In every department of life reforms are called for if old abuses are to be remedied or new wants supplied. That which is good and sufficient for one generation may prove bad or inadequate for the next; and it is only fitting that we should pause occasionally amid the hurry of professional life to inquire whether a change in our methods of practice may not be desirable in view of the altered social conditions that everywhere surround us and the needs peculiar to our profession.

Nowhere is this social change more apparent than among the wage-earning class. The artisan now enjoys a degree of prosperity hitherto unknown. Combination has greatly increased his earnings; the purchasing power of money has grown enormously; education, a cheap press, and trade unionism have converted a large proportion of the class into shrewd and observant men of business. With a higher standard of comfort the requirements of the wage earner have increased and with them the demands on his medical attendant. The working-class patient is to-day more capable than formerly of appreciating careful treatment and of paying for it.

Yet such is the condition of our profession, such a lack of solidarity do we exhibit, so careless are we of each other's welfare, so engrossing are the calls upon our time, that we most of us seem content to let things drift, while the contract system of practice, by its gigantic growth, goes on dwarfing year by year the field of fair and legitimate competition. As a result our incomes suffer directly, and are indirectly affected by the fact that, as compared with contract rates, a lowered scale of fees must be regarded as remunerative. Thus there has arisen an ever-increasing tendency to the reduction of our earnings to a mere living wage. By supplying "medical benefits" the Friendly Societies have absorbed hundreds of thousands of well-to-do artisans, and in many cases their families; and the leakage is continued, in part owing to the attraction offered by the underpaid work of their medical officers. Other commercial concerns have followed suit. Medical men themselves, with incredible folly, have formed their private clubs, from which they cannot always without offence exclude the more prosperous mechanic or tradesman, till at present there is hardly a pothouse in the kingdom that does not shelter its working men's society, while the members thereof, drunk or sober, discuss among other things their doctor.

For such a state of things a drastic remedy is required. Palliative treatment will not avail. The entire question of contract practice must be reconsidered. Has it an adequate *raison d'être* at all? Is it not fraught with evil to our profession as a whole, to the public who take advantage of it, and to those medical men who engage in it?

Surely, as it affects our profession it is an unmitigated evil. It is degrading to our profession. Ask any merchant or respectable shopkeeper how this private penny-a-week traffic appears to him; or, if medical officer to a Friendly Society, inquire if he would be willing to accept a salary made up of pennies gathered from men of the same status as his own employés, and in return for it to submit his conduct to their judgment. Here, for example, is Section 2 of Rule XXIV, "Marquis of Worcester" Branch of the Ancient Order of Foresters:

Should a sick member be neglected by the medical officers, he shall give notice of the same in writing to the Secretary, who shall at once apply to the medical officers, and if such charge of neglect appears to be well-founded, the Secretary shall give notice thereof in writing to the medical officers and bring the case before the Court, and all expenses incurred by such neglect (if proved) shall be chargeable to the medical officers and deducted from any salary which may be due to them at the time by the Court.

The doctrine of the right of trial by one's peers seems here to have been overlooked; but clearly some such rule was inevitable from the very nature of the compact. For the rest, a hostile few might, under this rule, cause a devoted medical officer an immense amount of worry, though actual neglect might be followed by no adequate punishment.

"But is not this a form of medical charity?" asks our hypothetical merchant. "Well, many of them are poor enough," is the somewhat lame reply; for, knowing, as you do, that the idea of charity has only recently been repudiated by the Friendly Societies, and with the knowledge you possess that never in the whole course of your experience did a club member regard himself as the recipient of your clandestine beneficence, you cannot honestly answer in the affirmative; whereupon most likely the shrewd merchant smiles; and you recollect uneasily that you had a project for raising the club subscription to 2d.!

That the contract system is of very doubtful benefit to that portion of the public whom it concerns, appears clear from a passage in a recent address: "We all know what club practice of the present day means. A list of stock mixtures is kept containing drugs which possess the common virtue of being cheap—magnesium sulphate, ammonium carbonate, potassium bromide, and sacch. ust. are useful in this particular. Sodium salicylate, bismuth, cinchona, and potassium iodide are seldom used." To these observations it is unnecessary to add anything.

But how does contract practice react on the individuals engaged in it? Many years ago, on entering the surgery of a highly-esteemed colleague, I noticed that something had disturbed him. "Look at that," said he, pointing to a small heap of human hair lying upon his desk; "a clubber!" As I failed to grasp the situation, he explained that after an interview with a club patient who had accused him of neglect, he had proceeded to pull out the little heap of hair from his own head! The man, it is true, was of a somewhat bilious-nervous temperament; yet it might be of interest to investigate the relative degrees of baldness of those who do and those who do not indulge in contract work. This, no doubt, is an extreme and humorous instance of the worry inseparable from contracting away one's freedom of action; but a very little reflection will reveal numerous other grounds of objection to the system, and show how unfavourably it affects not only the individual medical man, but the public and our profession as a whole.

Contract practice has a great vogue, however. The oldest living members of our profession must have found the system in full swing on commencing practice, and it is not surprising that the younger generation should have acquiesced in it. For its existence no one can be said to be blameworthy, for its continuance everyone. There is a vast amount of discontent with their medical treatment among the recipients of so-called "medical benefits." These "benefits," however, form one limb of the three-legged stool on which the Friendly Societies repose, the other two being sick pay and burial money, and the societies cannot therefore well dispense with the services of a medical officer. On the other side, there is an apparently increasing number of medical men holding club appointments who would rejoice to be delivered from bondage if only their resignation could have the effect of disintegrating their clubs. On both sides there is plenty of discontent, and discontent is an indispensable preliminary to reform.

The remedy, however drastic it may appear to some at first sight, springs logically out of the nature of the institution it is sought to reform. And so accustomed are we in our daily work to base our practice on sound principles where these are attainable, and to abandon palliative measures where radical treatment is called for, that we enjoy by training an advantage over the general public in facing the possibility of an absolutely new departure. It is clear that all these institutions, Friendly Societies and the like, are nothing more or less than assurance companies worked on co-operative lines. They are

* Read before the Bath and Bristol Branch of the British Medical Association.