a result been obtained, and it seems to me to be full of promise for the future. I must, however, here confess to no little anxiety as to the machinery of collection and distribution of the cards of inquiries, and the expense of their maintenance. Already the post of Secretary to the Committee has become almost too heavy to be borne by a single individual, the mere tabulation of the returns involving the expenditure of time and patience which can never be adequately remunerated. It seems to me that, as the collective investigation scheme grows, many and important modifications will have to be made; and that the Association will have to consider the advisability of utilising its Branches for the purpose of collecting and tabulating the data furnished by members of the Branch. In doing this, still greater demands must necessarily be made on the finances of the Association; but, if the work is to be thoroughly done and successfully, the Association must not hesitate to expend money upon it.²

As to the other inquiries now in progress, I have but little to say. Such subjects as chorea, rheumatism, diphtheria, and albuminuria are each so full of interest, and so frequently under the view of every medical practitioner, that no doubt can arise as to the possibility of obtaining material upon them. There has, however, been started one investigation which appeals more widely than these; I mean that upon "old age," which was instituted on Professor Humphry's suggestion. The conditions of longevity have never been systematically studied; and we want the correction of ideas, gathered from solitary examples, by the results of a multitude of instances, to estimate them truly. And, in pursuance of this inquiry, we can enlist on our side the sympathies of the subjects themselves, who mostly take a pride in their length of years, and would be well pleased to give us answers to the questions we put them upon their life-history. Mr. Francis Galton's scheme of a Family Album, which was supervised by the Collective Investigation Committee, is more thorough and exact; but it will take long for it to be thoroughly known and established. This inquiry on "old age" promises, however, to be brought to an issue speedily; and from the manner in which it is taken up we may be able to infer how far Mr. Galton's expectations are likely to be verified.

Although, as I have indicated, I do not myself think that the actual labour expended in filling up many of these cards is much, and that the concise manner in which the points are drawn up minimises this labour, so that anyone really undertaking it will be surprised at the readiness with which it is done, I am free to admit that I have never had to do this personally. But I trust that no one will be deterred from assisting in these investigations on this score. Indeed, I have come here to urge you to co-operate, and to use your influence in persuading others to co-operate, in assisting in these researches. At the same time, if there be any points to which you may deem it desirable to draw attention, the Committee will be grateful for your assistance.

I should also remind you that two, if not three, of these researches have been conducted on a far more restricted basis than the rest. Notably was this the case in the inquiry into the communicability of phthisis last year. The subject was one which had been very prominently brought before the notice of the profession by certain pathological researches upon which I need not now dwell; and it was a question which admitted either a simple negative or affirmative answer—appealing merely to experience on a single point, and not requiring much detailed exposition. The result of that appeal was that, in a few weeks, 1,078 replies were received, of which number 261 gave an affirmative answer, more or less abundantly borne out by details of the circumstances; so that the evidence, on the whole, was considered to be in support of the view that, under certain conditions, phthisis is communicable from person to person. The inquiry may not have been conducted with all the precaution essential to a really scientific research; but the fact that nearly three-fourths of that large number of observers had no experience of contagion in phthisis, whereas the remainder had had more or less positive experience, is a result which may prove to be of value. In such a question as this, an affirmative, if capable of proof, outweighs many negatives.

Another inquiry has recently been conducted upon much the same lines, upon a subject which the collected experience of the many alone may be expected to throw light; viz., puerperal fever. It is to be

hoped that the subject, which will be reported upon in the *Record*, will still be maintained in the list, in order that the multiplication of records of the disease, and the conditions of its supervention, may lead to that differentiation into its components which puerperal fever must undergo. It is time that, as a simple entity, the disease disappeared from nosology; but the varied febrile conditions of the puerperal state require yet to be widely and systematically studied.

As time goes on, we shall learn better how to frame those inquiries, and how to limit them. The question of collective investigation is not yet out of the experimental stage, and we must be prepared to modify and alter plans originally formed, as we find them to work in practice. As to the questions to be investigated, there is no limit to them. Indeed, the fear is lest we may be too much embarrassed at one time by having so many from which to make a choice; and, personally, I deprecate this multiplication of inquiries. In the selection of subjects suitable for inquiry, which will promise to yield good results, the Committee invite the guidance of all those concerned. Undoubtedly, the ultimate aim of such labour is to enlighten us on the great question of the treatment of disease. The more facts we have concerning the conditions under which diseases exist, and the more knowledge we possess upon their nature, the better shall we be able to cope with them in practice. A system of collective investigation which is directed to such an end should not fail of support; and I do not think that, as the knowledge of its objects is more widely diffused, there need be any fear of this. It requires only the active sympathy and personal participation in its work of every member of the Association to make it one of the most remarkable movements which the world has ever witnessed, as well as one of the most beneficial.

TOBACCO AMBLYOPIA.

By CHARLES SHEARS, L.R.C.P. Lond., M.R.C.S.,
House-Surgeon, Liverpool Eye and Ear Infirmary.

FORTY men, suffering from loss of vision, which was probably due to the abuse of tobacco, presented themselves for treatment at the Eye and Ear Infirmary during ten months. Having taken notes of these cases, the honorary medical officers have very kindly permitted me to publish them.

"Tobacco amaurosis" has been very fully discussed, both at home and abroad, during the last few years, more especially in this country by Mr. Jonathan Hutchinson and Mr. Nettleship. There still remain, however, many points about which there is great difference of opinion; and the hope that later observation by some gentlemen present may tend to set these disputed questions at rest, has encouraged me to bring the subject again forward.

The diagnosis of tobacco amblyopia was arrived at in the following conditions: 1, where there was rapid and usually great failure of sight, not remedied by spectacles, and not due to obvious external changes; 2, where no ophthalmoscopic changes were found, or, at the most, slight pallor or redness of the disc; 3, where the patient was an excessive smoker.

The after-progress of most of the cases which I have collected seems to confirm the correctness of the diagnosis which was made in the first instance.

Of the forty cases, fourteen recovered completely; fourteen improved greatly; and in twelve no improvement was noted. Of the twelve cases where no improvement was noted, three attended once or twice only, and have not returned, though written for; five attended once only, and could not be traced; one attended for the first time quite recently; in three no improvement took place after attending the hospital for a reasonable time. Of these three cases, two would not in any way diminish their smoking; and the third was such a confirmed drunkard that, quite recently, he was attacked by alcoholic paraplegia.

I have drawn up my cases in a tabular form suggested by Mr. Hutchinson, when writing on the subject of tobacco amaurosis.

1. *State of Optic Disc.*—When attention was first drawn to tobacco as a cause of impairment of vision, very frequent mention was made of "white atrophy" supervening; and, from what I have been able to gather from the literature of the subject, a grave prognosis was given. Now, on the other hand, if a case be recognised as "tobacco amblyopia," one feels the greatest relief in being able to tell the patient that, in all probability, he will entirely recover his sight if he have only strength of mind enough to give up smoking. In 1869, Mr. Soelberg Wells, in his book on *Diseases of the Eye*, states that atrophy ensues in some cases; and Mr. Hutchinson, about the same time, recorded a case where absolute blindness resulted. In 1876, Professor Förster stated that progress to complete atrophy is very rare. Professor Hirschberg, on

² I hope I shall not be considered as too Utopian in another suggestion that arises out of this. I find, for instance, in this inquiry upon pneumonia, that about one-third of the cases reported upon came from Lancashire and Yorkshire. The large and populous centres in these counties are in part explanatory of this; but, of course, we have been unable to come to any conclusion regarding the prevalence of pneumonia in different parts of the country. The returns of the Registrar-General, which deal only with mortality, afford a certain, but by no means a safe, estimate upon which to draw conclusions on this head. It has, therefore, occurred to me that, if the British Medical Association could undertake, through its members, a system of voluntary registration of disease, a plan which could be worked side by side with this of collective investigation, a service of inestimable value would be rendered.

Notes of 40 cases of Tobacco Amblyopia under treatment at the Liverpool Eye and Ear Infirmary.

Name and Age.	Duration of Amblyopia.	Vision when first seen.	Habits as to Tobacco.		Subsequent Vision.	Ophthalmoscopic changes, etc.	Treatment, State of Health, etc.
			Before.	After.			
1. G. M., 54	4 months	R. $\frac{30}{100}$ L. $\frac{20}{100}$	$\frac{1}{2}$ oz. twist daily. Chews	Almost ceased smoking. Chews	In 4 months R. $\frac{20}{100}$ L. $\frac{20}{100}$ } Jäger 1	Temporal, sides of discs pale	Strychnia. Temperate.
2. P. B., 57		R. not $\frac{20}{100}$ L. $\frac{20}{100}$ } Jäger 16	Over 1 oz. daily	Almost ceased	In 6 months R. $\frac{20}{100}$ L. $\frac{20}{100}$ } Jäger 1	Discs pale	Strychnia. Drinks to excess.
3. J. D., 41		R. $\frac{20}{100}$ L. $\frac{20}{100}$ } Jäger 16	4 oz. weekly	Almost ceased	In 9 months R. $\frac{20}{100}$ L. $\frac{20}{100}$ } Jäger 1	Nil	Strychnia. Temperate.
4. J. D., 57	6 months	R. $\frac{20}{100}$ L. $\frac{20}{100}$ } Jäger 16	$\frac{1}{2}$ oz. twist daily for 20 years	Ceased entirely	In 3 months R. $\frac{20}{100}$ L. $\frac{20}{100}$ } Jäger 1	Nil	Strychnia. Temperate.
5. T. J., 49	12 months	R. $\frac{20}{100}$ L. $\frac{20}{100}$	1 oz. twist daily	Smoked 1 oz. mild weekly	In 5 months R. $\frac{20}{100}$ L. $\frac{20}{100}$ } Jäger 1	Nil	Strychnia. Drinks to excess. Sexual excesses.
6. B. W., 44	12 months	R. $\frac{20}{100}$ L. $\frac{20}{100}$ } Jäger 16	$\frac{1}{2}$ oz. twist daily	Ceased entirely	In 6 months R. $\frac{20}{100}$ L. $\frac{20}{100}$ } Jäger 1	Nil	Strychnia.
7. G. W., 58	Sight failing rapidly lately	R. $\frac{20}{100}$ L. $\frac{10}{100}$	$\frac{1}{2}$ oz. twist daily	Smoked for 4 mths. & then ceased	In 6 months R. $\frac{20}{100}$ L. $\frac{20}{100}$ } Jäger 1	Nil. Central nebula left cornea	Strychnia. Temperate.
8. J. W., 34	3 months	R. $\frac{20}{100}$ L. $\frac{20}{100}$ } Jäger 16	$\frac{1}{2}$ oz. twist daily for 15 years	Almost ceased	In 1 month R. $\frac{20}{100}$ L. $\frac{20}{100}$ } Jäger 1	Nil. Central scotoma	Placebo. Drinks to excess.
9. P. C., 39	4 months	R. $\frac{20}{100}$ Jäger 12 L. $\frac{20}{100}$ Jäger 14	1 oz. twist daily for 15 years	Almost ceased	In 2 months R. $\frac{20}{100}$ Jäger 4 L. $\frac{20}{100}$ Jäger 1	Temporal sides of discs pale. No scotoma	Strychnia.
10. J. W., 52		R. $\frac{20}{100}$ Jäger 6 L. $\frac{20}{100}$ Jäger 12	$\frac{1}{2}$ oz. daily. Chews	Continued to chew $\frac{1}{2}$ oz. weekly	In 2 months R. $\frac{20}{100}$ L. $\frac{20}{100}$ } Jäger 1	Nil	Strychnia. Drinks to excess.
11. J. R., 53	2 months	R. $\frac{20}{100}$ L. $\frac{20}{100}$ } Jäger 10	$\frac{1}{2}$ oz. twist daily	Ceased entirely	In 3 months R. $\frac{20}{100}$ L. $\frac{20}{100}$ } Jäger 1	Nil	Strychnia. Temperate.
12. G. D., 41	5 weeks	R. $\frac{20}{100}$ L. $\frac{20}{100}$ } Jäger 10	$\frac{1}{2}$ oz. twist daily	Almost ceased	In 5 months R. $\frac{20}{100}$ Jäger 1	R. blind from old choroiditis L. nil	Strychnia. Temperate
13. J. W., 53		R. $\frac{20}{100}$ L. $\frac{20}{100}$	$1\frac{1}{2}$ oz. weekly	Almost ceased	In 3 months R. $\frac{20}{100}$ L. $\frac{20}{100}$ } Jäger 1	Nil	
14. J. C., 56		R. $\frac{20}{100}$ L. $\frac{20}{100}$ } Jäger 8	2 oz. weekly for 40 yrs. Chews.	Continued to chew a little	In 12 months R. $\frac{20}{100}$ L. $\frac{20}{100}$ } Jäger 1	Discs pale	Strychnia.
15. M. D., 46	3 months	R. not $\frac{20}{100}$ L. $\frac{20}{100}$ } Jäger 16	$\frac{1}{2}$ oz. twist daily	Almost ceased	In 1 month R. $\frac{20}{100}$ L. $\frac{20}{100}$	Central scotoma	Placebo. Teetotaler 5 years.
16. J. W., 53		R. $\frac{20}{100}$ L. $\frac{20}{100}$	$\frac{1}{2}$ oz. twist daily		In 5 weeks R. $\frac{20}{100}$ L. $\frac{20}{100}$	Discs pale	Strychnia. Could not be traced.
17. R. D., 50	6 months	R. $\frac{20}{100}$ L. $\frac{20}{100}$ } Jäger 16	$\frac{1}{2}$ oz. twist daily for 30 years		In 1 month R. $\frac{20}{100}$ L. $\frac{20}{100}$ } Jäger 10	Discs pale. No scotoma	Strychnia. Drinks to excess.
18. W. A., 57	1 week	R. $\frac{20}{100}$ L. $\frac{20}{100}$ } Jäger 16	$\frac{1}{2}$ oz. daily		In 3 weeks R. $\frac{20}{100}$ L. $\frac{20}{100}$	Nil	Bromide. Drinks to excess.
19. F. B., 46	Several months	$\frac{20}{100}$ Jäger 14	Heavy smoker for many yrs.	Ceased entirely	In 3 months $\frac{20}{100}$ Jäger 6	Nil	Strychnia. Temperate.
20. J. M., 28		R. $\frac{20}{100}$ L. not $\frac{20}{100}$	1 oz. twist daily. Chews.	Continued to chew a little	In 2 months R. $\frac{20}{100}$ L. $\frac{20}{100}$	Both cornea nebulous but especially the left	Strychnia. Drinks to excess.
21. C. S., 41	5 weeks	R. $\frac{20}{100}$ L. $\frac{20}{100}$ } Jäger 16	$\frac{1}{2}$ oz. daily		In 3 months R. $\frac{20}{100}$ L. $\frac{20}{100}$	Nil	Strychnia. Could not be traced.
22. W. R., 43	8 months	R. $\frac{20}{100}$ Jäger 12 L. not $\frac{20}{100}$ Jäger 16	Pipe hardly ever out of his mouth.	Almost ceased	In 3 months R. $\frac{20}{100}$ Jäger 8 L. $\frac{20}{100}$	Nil	Strychnia. Temperate. Has had two transient attacks of hemiplegia.
23. H. S., 60	8 months	R. not $\frac{20}{100}$ Jäger 16 L. not $\frac{20}{100}$ Jäger 18	2 oz. weekly for 30 years		In 2 weeks R. $\frac{20}{100}$ L. $\frac{20}{100}$	Nil. Central scotoma	Placebo. Temperate. Recent case (four weeks.)
24. W. E., 59		R. not $\frac{20}{100}$ L. $\frac{20}{100}$ } Jäger 16	Heavy smoker		In 6 months. Much better, is able to follow occupation	Nil	Strychnia.

Notes of 40 cases of Tobacco Amblyopia under treatment at the Liverpool Eye and Ear Infirmary.—Continued.

Name and Age.	Duration of Amblyopia.	Vision when first seen.	Habits as to Tobacco.		Subsequent Vision.	Ophthalmoscopic changes, etc.	Treatment, State of Health, etc.
			Before.	After.			
25. W. L., 26	2 months	R. not $\frac{2}{30}$ Jäger 16 L. not $\frac{2}{30}$ Jäger 10	$\frac{1}{2}$ oz. daily		In 2 weeks R. $\frac{2}{30}$ Jäger 14 L. $\frac{2}{30}$ Jäger 8	Disc hyperæmic. No scotoma	Strychnia. Drinks to excess. Recent case.
26. W. C., 45	3 months	R. not $\frac{2}{30}$ Jäger 16 L. $\frac{2}{30}$ Jäger 14	2 oz. weekly for 20 years			Nil. Central scotoma	Placebo. Teetotaler 22 years. Recent case.
27. J. A., 49	4 months	R. $\frac{2}{30}$ } Jäger 16 L. $\frac{2}{30}$ }	$\frac{1}{2}$ oz. twist daily for 10 years		In 7 months. Much better and able to follow his occupation	Temporal, sides of discs pale	Strychnia. Drinks to excess.
28. G. W., 45	2 months	R. not $\frac{2}{30}$ Jäger 18 L. not $\frac{2}{30}$ Jäger 20	$\frac{1}{2}$ oz. twist daily. Chews		In 2 months $\frac{2}{30}$ Jäger 16	Discs pale	Strychnia. Temperate. Only attended 2 months, and though written for has not returned.
29. R. H., 38	18 months	R. $\frac{2}{30}$ } Jäger 16 L. $\frac{2}{30}$ }	Heavy smoker for 20 years	Ceased entirely	In 1 month R. $\frac{2}{30}$ L. $\frac{2}{30}$	Nil. No scotoma	Placebo. Drinks to excess. Only attended 1 month, and though written for has not returned.
30. J. E., 46	5 months	R. $\frac{2}{30}$ Jäger 10 L. $\frac{2}{30}$ Jäger 8	$\frac{1}{2}$ oz. mild tobacco weekly		In 1 month No change		Strychnia. Only attended twice; could not be traced.
31. S. P., 33	10 weeks	R. not $\frac{2}{30}$ } Jäger 16 L. not $\frac{2}{30}$ }	$\frac{1}{2}$ oz. twist daily for 30 years		In 1 month No change	Discs hyperæmic. Central scotoma	Bromide. Drinks to excess. Attended twice only, and though written for has not returned.
32. R. G., 46	9 months	R. $\frac{2}{30}$ } Jäger 16 L. $\frac{2}{30}$ }	$\frac{1}{2}$ oz. twist daily			Nil. No scotoma	Placebo. Drunkard up to 5 years ago. Attended once only, and though written for has not returned.
33. C. G., 48	3 months	R. not $\frac{2}{30}$ } Jäger 16 L. $\frac{2}{30}$ }	$\frac{1}{2}$ oz. twist daily for 30 years			Temporal sides of discs pale. No scotoma	Strychnia. Drinks to excess. Great exposure. Attended once only, and could not be traced.
34. T. C., 60	5 months	R. not $\frac{2}{30}$ } Jäger 16 L. not $\frac{2}{30}$ }	$\frac{1}{2}$ oz. daily for 30 yrs.		In 2 weeks No change	Nil	Strychnia. Attended once only, and though written for has not returned.
35. W. G., 37		R. not $\frac{2}{30}$ } Jäger 16 L. not $\frac{2}{30}$ }	Heavy smoker		In 2 weeks No change	Nil	Placebo. Attended twice only, and could not be traced.
36. T. G., 42		R. $\frac{2}{30}$ } Jäger 12 L. $\frac{2}{30}$ }	Heavy smoker			Nil	Strychnia. Attended once only, and could not be traced.
37. E. B., 43	7 weeks	R. not $\frac{2}{30}$ } Jäger 16 L. not $\frac{2}{30}$ }	$\frac{1}{2}$ oz. twist daily for many yrs.		In 1 week No change	Nil	Strychnia. Attended once only, and could not be traced.
38. R. C., 44	8 months	R. not $\frac{2}{30}$ } Jäger 16 L. not $\frac{2}{30}$ }	Heavy smoker	Smoked & drank to excess	In 9 months No change	Nil. 9 months later discs very pale	Strychnia. Drinks to excess. General health much improved.
39. R. B., 29	2 weeks	R. not $\frac{2}{30}$ } Jäger 16 L. not $\frac{2}{30}$ }	$\frac{1}{2}$ oz. daily	Almost ceased	In 3 months No change	Discs pale on temporal sides. Central scotoma	Bromide. Drinks to excess. Recent attack of alcoholic paraplegia.
40. L. B., 59		R. not $\frac{2}{30}$ } Jäger 18 L. not $\frac{2}{30}$ }	2 oz. weekly. Chews	Smoked & drank to excess	In 2 months No change	Discs very pale	Bromide and nux vomica. Drinks to excess.

the other hand, in a paper read at the meeting of the Association in Cork, said that tobacco amblyopia never ends in blindness; and with this statement, Mr. Nettleship, I think, agreed. In an article by Mr. Streetfield, in the recently published Quain's *Dictionary of Medicine*, the following is met with: "Some cases of white atrophy occur in which there has been no preceding neuritis; of such, tobacco amaurosis is an example, in which, unless smoking be given up, by an idiosyncrasy of the patient, he soon becomes blind."

In twenty of the cases which I have collected, no ophthalmoscopic change was found; in eighteen, the discs were pale, and especially on the temporal side; in two, hyperæmia was met with. It would be foolish to attempt to draw any conclusions from so small a number of cases as forty; but in no instance was any condition of atrophy found. It must be within the experience of all ophthalmic surgeons to see cases of complete atrophy where no satisfactory cause can be found; some of these may be due to tobacco.

The failure of vision in "tobacco-amblyopia" is usually rapid and very marked; this leads patients to seek early advice, which may possibly explain why so few cases of genuine atrophy have been reported. Of my own cases, the longest period of failure of sight was eighteen months, the great majority being about three months. In many instances, the state of the disc greatly resembled that met with in "tabes dorsalis." In all our cases, the presence of the "knee-jerk" was taken as evidence that the patient was not suffering from this disease.

2. *Alcohol*.—Whether the abuse of alcohol, together with excessive smoking, is not a very powerful factor in determining the loss of sight, must be a most difficult point to decide; and here, also, eminent authorities differ. Soelberg Wells, Graefe, Sichel, and Galezowski lay great stress on the combined effect of spirit and tobacco; whereas Mr. Hutchinson has said that, in his opinion, "the injurious effect of tobacco is to some extent counteracted by alcohol." That alcohol is not a necessary factor may be inferred from a case reported by Mr. Stanford Morton, in which the patient was a teetotaler, but recovered his vision entirely on ceasing to smoke; and two of our cases had been teetotalers for many years, and fully half the number had only partaken of alcohol in very moderate quantity.

Mr. Nettleship, in his remarks on a series of cases reported in 1877, says: "Alcohol, and especially spirit, is an important predisposing cause." At the same time, he mentions a very instructive instance of a man who recovered, reading Jäger 1 and $\frac{2}{30}$, though continuing to drink heavily all the time. Under these circumstances, may alcohol predispose by lowering the general tone and rendering the patient more liable to the poisonous effect of nicotine? or is alcohol *per se* an important factor in causing the loss of vision met with in smokers?

3. *Habits as to Tobacco*.—Is it necessary to entirely stop the consumption of tobacco, or is its diminution all that is required? Some observers, such as Galezowski, hold that tobacco must be absolutely given up; whereas Mr. Nettleship considers that it is quite sufficient

to reduce the quantity used. This seems to me to be a practical point of some moment; for many men would willingly reduce their smoking, and use very mild tobacco, whereas stopping it entirely would be the greatest possible hardship.

Of the limited number of cases which I have collected, many continued to smoke a little, and made an equally good recovery. The quantity smoked in the first instance was very rarely less than half an ounce a day, and a very strong form of tobacco was used. Six patients chewed as well.

4. *Treatment*.—It is usually the practice to give strychnia internally. This was done in twenty-eight cases; but patients seemed to make an equally good recovery when smoking was diminished alone. Dr. Galezowski states, in his monograph on *Toxic Amblyopia*, that workers in tobacco-manufactories suffer from loss of sight as in smokers. By the kindness of Messrs. Cope Brothers, of this city, I was allowed to go over their large tobacco-manufactory, and make any inquiries I thought necessary of their workpeople. About 1,200 men and women are engaged in the works; and I made careful inquiries of the foremen of the different departments. In no instance had any of them suffered from failure of vision, nor had such a case ever come under their notice. Many of the men had been over ten years in Messrs. Cope's employ. No amblyopia was produced by the absorption of tobacco-dust, as described by Galezowski. Mr. Charles Lee, one of our assistant-surgeons, kindly made similar investigations for me at a large tobacco-manufactory in Chester, and here, again, loss of sight from contact with tobacco was unknown.

If I may be allowed to draw any conclusions from the stated experience of our surgeons, and the cases I have been able to bring forward, they would be these:

a. Atrophy of the optic nerves is very rarely met with as the result of excessive smoking.

b. Tobacco is the essential agent in producing the failure of sight.

c. Great moderation in smoking, and especially the employment of mild forms of tobacco, is all that is necessary to ensure recovery.

In the great majority of the cases, no diminution in the peripheral field of vision was found. In twelve only were careful observations made with regard to a central defect in the visual field; and, of these twelve, six cases were found having well marked "central scotomata."

ARSENIC IN GASTRIC ULCER.

By JOHN STRAHAN, M.D., M.Ch., Belfast.

THREE cases of gastric ulcer occurring in my practice within the last three years, each ending in recovery in an unusually short time, and each occurring in the most dangerous class of subject—viz., a young woman—may illustrate the efficiency of a modern plan of treatment not enough known or practised in this country. Dr. S. Ringer certainly mentions arsenic as being more useful than the generally employed remedies, but does not recommend it in so hearty a way as to lead the profession to make trial of it. The American physicians are, however, using it very freely and with great success, not only in gastric ulcer, but in chronic gastritis, cancer of the stomach, and the various forms of intestinal indigestion, ileo-colitis, etc.

CASE I.—The first case in which I tried this plan came under observation about three years ago. The patient was aged 25, a female, unmarried, housekeeper to a widower father, and had been ill for two years. She was very much emaciated, and complained of all the symptoms usual in such cases—viz., localised pain in the epigastrium, of a gnawing, boring character, shooting straight through to the back between the shoulders, where a very tender spot existed on the spine rather below the angle of the scapula. The seat of pain in the epigastrium was also extremely tender to pressure. The pain was greatly increased by hot or stimulating articles of diet, and indeed by any food; the pain continuing until vomiting occurred, with great relief. There were also severe attacks of gastralgia radiating from the tender spot all over the epigastrium, which caused great distress at intervals, also acid pyrosis. The most diagnostic symptom, however, was hæmatemesis, which had occurred to a moderate extent three different times. There had been scanty menstruation, and latterly amenorrhœa, from the severe anæmia present.

She had been under the care of several competent medical men, and, lastly, under that of the late Dr. Thompson, one of the most distinguished men in the north of Ireland. He treated her with from quarter to half grain doses of nitrate of silver with a grain of opium in pill for some time, and then with large doses of bismuth, with opium and counter-irritation to the epigastrium. While under this treatment, she improved a good deal, but a few weeks after stopping the

medicines she became as bad as ever; for some time, therefore, she had abandoned all treatment, thinking it useless. She came to me without the least hope of benefit, and merely to please a relative, an old nurse in the fever-hospital, whom I had known when house-physician there. I immediately put her upon regular milk-diet (four ounces every four hours), with lime-water, regulated the bowels with a simple aloes-pill at night, applied a small blister (the size of a penny) to the tender spot on the epigastrium, and gave her one drop of Fowler's solution, on an empty stomach, four times daily. She returned in a week much improved in every way. The vomiting had almost ceased; the pain was very much less, and she had gained a little colour. The treatment was continued for a month, when she was almost well. All the symptoms had ceased, and she was wonderfully improved in flesh. The arsenic had evidently also cured the anæmia. She continued the medicine a little longer, and was ordered to be very careful about her diet for some time. She has remained quite well ever since.

CASE II.—The second case was a girl aged 20, engaged in a linen-warehouse, unmarried, and of a very full habit, but lymphatic in temperament. When I was called to this case, the friends supposed her dead from vomiting of blood. She was in a severe state of syncope from a dreadful hæmatemesis, which had occurred without a moment's warning. After recovering her from the syncope by the usual means, brandy, the head low, ammonia to the nostrils, etc., I gave her ice and a large dose of gallic acid to guard against renewed hæmorrhage, which would probably have proved fatal. She was so utterly exhausted that I made no further examination that day, except to gently ascertain the absence of phthisis. In a few days, as there did not appear any symptoms of perforation, I made an examination, and completed the diagnosis of gastric ulcer, by finding localised pain and tenderness, with pain in the lower dorsal spine, and ascertaining that she had been troubled with more or less vomiting after meals, although otherwise in good health.

She was treated exactly as the first case, and with exactly the same result. She had to stay in bed a fortnight from debility, but, at the end of that time, she demanded an addition to the milk-diet on account of increased appetite. She was allowed all kinds of farinaceous articles in the fluid or semi-solid state. I added ten grains of ammonio-citrate of iron to each dose, as the anæmia was extreme. In another fortnight, she was quite well, was cautioned as to her diet, and remains well up till the present time (eight months).

CASE III.—The third case occurred about six months ago, in the person of a girl aged 18, a housemaid, who had been ailing for some time. She was becoming thin and anæmic, the menses scanty, and vomiting more or less after meals, so that her mistress first suspected pregnancy, and then consumption. This case was rather more latent than either of the others, as there had been no hæmatemesis. But there was no difficulty in diagnosing gastric ulcer, as on cross-examination I ascertained that the menses had never quite ceased, and that she had noticed "coffee-grounds" in the vomit several times. I was fortunate enough to see some of this for myself, when there was no difficulty in recognising altered blood. The lungs were healthy; the pain and tenderness in the epigastrium and in the back were very marked. Hence, taking the case as a whole, no doubt could exist as to the diagnosis. There was great constipation; and, as she could not swallow pills, I added sixty grains of sulphate of soda to each dose of arsenic. This regulated the bowels, and did not seem to interfere in the slightest with the soothing and cicatrising powers of the arsenic. The diet was regulated as before. In this case, the pain and vomiting stopped at once; there was no further appearance of coffee-grounds; she gained colour fast (she was in good flesh all along), and in three weeks was almost well. As she had a great antipathy to medicine in any shape, she now refused to take any more, and in another fortnight she was as bad as ever. The ulcer had evidently not been completely cicatrised. She was put on the same mixture again, and kept on it for a month, when she seemed quite well, and was allowed to try herself without medicine. Of course, for some time afterwards, her diet was confined to milk, all farinaceous articles in the semi-solid state, and white fish. She was denied all condiments, alcohol in any shape, sugar, meat, and anything quite solid, or anything hot. As she continued well at the end of another month, she gradually returned to her usual diet; she continues well up to the present time.

REMARKS.—It may be said that the improvement in the above cases resulted from regulation of the diet; but we know that milk-diet alone will not cure ulcer of the stomach so quickly, if at all. Besides, the first case had been put upon milk-diet several times before, and blistered several times before, so that she was rather unwilling to submit to my treatment at all, thinking she was just going to have the old treatment all over again. Of course, it is essential to regulate the