The operation for the cure of the hernia is conducted in the ordinary manner, and after opening up the inguinal canal by division of the external oblique, the neck of the sac is sewn or ligatured at the highest possible point. The pad is now placed in position. The cord and its vessels are threaded into the large hole by opening the slit extending from the upper part of the hole to the margin of the pad. The edges of the pad are then placed beneath the internal oblique and conjoined tendon on the one side and Poupart's ligament on the other. It only remains to cover the cord and the pad with the cremaster muscle and sew together by overlapping the divided fibres of the external oblique. The pad lies on the transversalis fascia, and is devised to fill a gap and afford additional support at a very weak spot in the abdominal wall. The patient is thus provided with an internal truss, which I hope and believe will afford him a permanent and efficient support, for unless the whole pad is pushed bodily forwards I fail to see how the hernia can again appear. The procedure, however, is still in the experimental stage, for I have adopted it on five occasions only, the first operation being performed on September 5th, 1905.

The patients operated upon were all labouring men, and the herniae of such a size as to render a truss useless; the men were consequently unable to earn a livelihood. In 4 out of the 5 cases the results have so far been highly satisfactory, the men having resumed their former occupations. The rubber pad does not cause any inconvenience, nor should it interfere with the healing of the wound. The last case operated upon was the only one in which there was any bother in this respect. The wound had healed and the stitches had been removed, when on the tenth day some fullness was noticed and a collection of pus had to be let out. A small sinus persisted, and two months later I removed the pad. In this instance a pad of unusual thickness was used, and I now know there was some defect in the preparation of it.

Though, as a general rule, the introduction of foreign bodies into wounds should as far as possible be avoided, still I am satisfied that in the exceptional cases I have mentioned the principles of this providing an "adequate backing" is sound. In such operations as that of Bassini it seems to me the chief value of the deep stitching is that the buried sutures act as scaffolding, around which a firm fibrous mass is formed which serves as an adequate backing, so that after all in inserting a pad of rubber or other material there is really no alteration of principle: it is merely a question of degrees.

In a case of femoral hernia I recently adopted the same plan, but used gauze instead of rubber. After excising the sac I plugged the femoral canal with a piece of gauze which I left there. The case has been too recently operated upon to justify me in drawing any definite conclusion from it. The procedure is, however, extremely simple, and I am satisfied that it is sound in principle, and propose to give it a fair trial. In my next case of inguinal hernia, where the neck of the sac is exceptionally wide, I intend to insert gauze instead of rubber.

CONCLUSION.

I would submit that all the evidence we possess is in favour of the view that the main factor in the causation of oblique inguinal hernia at all periods of life is the presence of a preformed sac, a patent funicular process, and that whether the bowel will or will not enter this funicular process depends primarily upon the size of the opening at the internal abdominal ring, and secondarily upon the strength of the muscles guarding it.

As a general rule the only satisfactory way of treating a hernia is by means of an operation, and, other things being equal, the earlier in life the operation is performed the better.

The essential point in the operation is to so completely obliterate the sac as to render the peritoneal surface at this level free from any dimpling or depression. In order to ensure this the inguinal canal must be opened up and a ligature applied to the sac at the level of the internal abdominal ring. The divided aponeurosis of the external oblique should be subsequently united by overlapping, for the inguinal canal is thus narrowed, lengthened, and its original obliquity restored.

SOME COMPARISON OF PHTHISICAL WITH NON-TUBERCULOUS MALES,

CHIEFLY IN RESPECT OF HEALTHY HEIGHT-WEIGHT RATIO,
AND OF MOUTH BREATHING.

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In an earlier communication¹ it was noticed that various causes of mouth breathing seemed common amongst consumptives, especially in those few of their number who were physically well-built, corroboration² on the first point being found and adduced. Further observation left the impression that, although this selective incidence was not as marked as had been thought at first, it yet held good not only as regards mouth breathing but also for antecedent alcoholism. For the heavy, muscular patients seemed pretty sure to have some considerable nasal obstruction—which appeared unusual in view of the fact that mouth breathing is described as lowering the general nutrition—or to have been alcoholic; not infrequently the two conditions coincided. It was thought possible, then, taking mouth breathing to stand to pulmonary phthisis in much the same relation as alcoholism is credited with doing, to collect cases to show how hardly people who are well-built get consumption. To these observations, that is, made on about 150 cases of both sexes, and mostly from private sanatoriums, there was fitted some such hypothesis as this: That deficient physique is an important predisposing cause of pulmonary phthisis, tending on the whole towards an alternative incidence to some others, chief of which are mouth breathing and alcoholism.

To attempt something in the way of verification there was set on foot this inquiry. At the outset there seemed to be two immediate objects, first, to get some knowledge as to the occurrence of mouth breathing amongst the non-tuberculous, next in order to calculate what may be called physique incidence, to have a purely objective classification of physical development. The latter requisite was secured in the following way. Any physical measurements used had, of course, to be free from the possibility of being affected by disease; thus selected, the best seemed height, and (as given by the patient) greatest healthy weight. This dependence on lay statements involved taking only male cases, for women seldom know their weight, of which, too, their clothing forms a very variable proportion. Another reason was that there are available more complete anthropometrical data concerning men than concerning women. The ratio between the two measurements just noticed, compared with Roberts's standard height-weight ratios,³ which vary with age and social condition, gave a figure which had, at all events, some value as a comparative measure of physique. It was for this reason—namely, that any pretence to absolute mensuration was seen to be out of the question in the case of an investigation largely founded on lay statements and on thirty-year-old statistics—that less hesitation was felt in eking out arbitrarily these anthropometrical standards. There was a great need for this. For, while a convenient scale of ages was found, there were recorded the measurements of only two social groups—those, namely, of the upper classes and of urban artisans. Two intermediate values were got by the expedient of inserting two arithmetic means between the figures of corresponding ages. Thus, for each age four standard height-weight ratios were available, with one or other of which the social condition of each case could be fitted fairly closely.

A fresh series of male phthisical cases was then secured, and of each consumptive, as of each case in the non-tuberculous "control" series to be mentioned presently, were recorded the following particulars:

1. Age of falling ill (present age in controls).
2. Occupation and social condition.
3. Height.
4. Maximum healthy weight.
5. Presence or absence of conditions causing either habitual or abnormally frequent mouth breathing, or impairment of the action of the nasal or naso-pharyngeal mucous membrane on inspired air.
6. A "mother-father-brother-sister" history of pulmonary phthisis.

It was of course impossible, in the absence of continued

close observation, to form an opinion as to antecedent alcoholism. In some adolescent advanced cases, (3) had to be corrected by means of anthropometrical data, so as to give a value contemporary with (4). From these two particulars were calculated each case's height-weight ratio, which was then compared with the standard (taken as unity) and expressed in decimals. The figures were found to vary from 0.78 to 1.4. As regards (6), absolute dependence was placed in the phthysical series on the patient's memory, cases professing ignorance being put in the same category with those who could positively exclude a phthysical taint. But the first sort were kept out of the control. These normal cases, collected *pari passu* with the phthysical, were made to conform to them in the following particulars:

(a) Sex. Both sets of cases were males.

(b) Age. Among the consumptives the average age (conveniently found by the use of the mode) was rather above the mid-point of the group, 21 years to 29 years; in the controls, 18 years to 26 years, rather below the mid-point, a small enough difference.

(c) Occupation and social condition. Twenty of the 373 phthysical cases came from private sanatoriums, the remainder from institutions mentioned below. The great majority of the normal series was taken (through the kindness of Mr. J. F. Colyer) from the extraction, anaesthetic, and stopping rooms of the Royal Dental Hospital. These people were well suited to the purpose; they lay under no charge of abnormality, the distribution of dental caries being so universal, and had the necessary high percentage of urban indoor workers, giving one, moreover, a good choice of ages. In both series, then, nearly all the cases came from those social classes that avail themselves of medical charity. To be more exact, the proportion of those following an outdoor calling was in each set 10 per cent. to 15 per cent. of the whole number; a still smaller percentage of each were rural dwellers. Rather less than one-sixth came in each instance from physically-selected classes (naval seamen, soldiers, police constables). The two series were, therefore, fairly comparable in most respects.

The results of such a comparison had to do, of course, with the interrelations of physique, mouth breathing, and family history, and may be arranged under four headings.

A.—The Nature, Causes, and Occurrence of Mouth Breathing.

In order to get as reliable a comparison as possible, the first 100 cases of each series are not included here.

TABLE I.—Percentage of Mouth Breathers.

Mouth-breathing Cases.	Percentages.	
	Phthysical— 273 Cases.	Control— 204 Cases.
1. Probably chiefly due to septal deviations, dislocations, spurs, etc. ...	34.7	20.5
2. In consequence of past or present adenoid vegetations; and of the projection of the upper teeth ...	11.7	5.8
3. Cases in which abnormal conditions of the nasal and naso-pharyngeal mucous membrane were prominent ... (Not all of these were mouth breathers.)	5.1	2 cases
4. Where the onset of nasal obstruction was definitely dated from trauma ...	2.9	2.4
5. From other causes:		
An underhung condition ...	2 cases	—
Polypus ...	1 case	1 case
Habit and uncertain ...	3 cases	1 case
Totals ...	56.7	30.8

So that habitual or abnormally frequent mouth breathing seemed to be nearly twice as common in consumptives as in healthy people, though due proportionally to the same causes. In this connexion there is a very simple fallacy to be mentioned. In phthysical subjects, of course, dyspnoea often leads to panting; this is easily excluded. The test of sufficiently large nasal passages is given⁴ as "ability to sleep at night with the mouth closed." A history of inability was often obtained, as also other significant admissions. Some reliance must be placed on lay statements when estimating nasal obstruction, for it is well known that considerable anatomical irregularity may coexist with free air passage; while on a single examination the patient may be found suffering from some quite temporary obstruction. Such are a history of difficulty in

nasal respiration on fairly moderate exercise, or of pre-dilection of obstruction for one nostril to the comparative exclusion of the other during an attack of coryza, as also, of course, of inability to breathe through the nose at night or when lying down. Under the headings 1 to 5 are given the causes which seemed to preponderate; often enough they were combined. Some uncertainty existed as to the relative importance and exact relationship of the two conditions given under 2. The history of the following cases may have a bearing on this point:

C. (Victoria Park Hospital), 26 years, fitter, said he had had adenoids removed four years before falling ill with phthisis, with resulting great benefit to nasal respiration. When seen the nasal passages were clear, but the projecting upper teeth kept the lips constantly apart.

W. (National Sanatorium, Bournemouth), 22 years, carpenter, gave an exactly similar history (except for stating that the operation took place in childhood), and was a parallel case.

Two somewhat similar cases were treated by the writer. In one of them a single incisor projected and separated the lips. Dental treatment was secured; it consisted in replacing this back tooth by an artificial one in line with its fellows. To each case were given a cap with elastic chin-band and an old-fashioned respirator, blocked up with sealing wax, to be worn over the mouth, for use at first occasionally during the day (in "rest hours") and finally all night as well. Nasal respiration was a good deal improved.

The traumatic cases mostly dated their injury from early life, and, as might have been expected, a deviated septum was common amongst them. The following case may be worth quoting:

S. (Victoria Park Hospital), private West Yorkshire Regiment, subsequently transferred to R.A.M.C., had dysentery and malaria, and went through two campaigns, but left the service healthy. Not long afterwards he met with an injury to his nose, and nasal respiration became impeded. He developed phthisis later.

Certainly this man took up the trade of a painter after leaving the army, but it is remarkable that neither campaign broke down his health, seeing that these events are generally followed by much invaliding for tubercle. A somewhat parallel case is the following:

E. (National Sanatorium, Bournemouth), 31, formerly an employé in a meat market, where he worked in the open air, noticed obstruction of the left nostril come on suddenly very soon after contracting the habit of taking snuff. This persisted up to present date, although he had left off the habit. A year after the nasal obstruction was noticed, he fell ill with phthisis. During this time he changed his occupation to an indoor one. Rhinoscopic examination showed a deviated septum, the nasal mucous membrane over the protuberance being inflamed.

Here again the change of occupation somewhat invalidates the significance of the case. The instances in which an underhung condition was found are interesting because they contrast with the maxillary protrusion common with adenoids. Taken by themselves, this latter group might favour the suggestion that a tendency to adenoid vegetations is simply a concomitant of a tuberculous diathesis. One of the cases with mandibular protrusion is noticed below in the analysis of family history.

It was observed that, on the whole, the most marked cases of mouth breathing were in the phthysical patients, among the robustly built. This did not seem to be the case in the control series. Finally, as some of these mouth-breathing phthysical cases were secondary to other tuberculous lesions, the question arises as to how often the condition precedes surgical tuberculosis.

B.—The Physique-incidence of Mouth Breathing.

The first 100 cases of each set are again excluded.

TABLE II.—Percentages of Mouth Breathers in Three Groups, Arranged According to Relation to Height-Weight Ratio Standard (1.00).

Series.	Groups.		
	1.1 and over. "Robust."	0.95 to 1.09. "Indifferent."	Below 0.95. "Weedy."
Phthysical ...	57.7	59.6	50.0
Control ...	29.2	32.0	31.8

Thus among consumptives there were more mouth breathers among the best-built men than among the worst: the reverse being the case in the non-tuberculous.

The tendency of a mouth-breathing condition to be oppositely distributed in the two series is also shown by the finding that the general average of physique (ascertained by taking the mode in relations to height-weight ratio standard) was lowered in the phthysical set of cases after subtraction of the mouth breathers, and conversely raised by the same means in the non-tuberculous group. It may also be significant that among the consumptives the physically-selected classes showed a higher percentage of mouth breathers than did the remainder; this was not the case in the control. Obviously, however, this is a point the settling of which requires anthropometrical examination of a great number of cases.

C.—*The Occurrence of a Defective Height-Weight Ratio.*
The wholes of both series are available here.

TABLE III.—*A Comparison of the Physique of Phthysical and of Non-Tuberculous Males.*

Series.	Mode in Height-Weight Ratio Standard Relations.
Phthysical...	0.97 — 1.05.
Control ...	1.06 — 1.14.

TABLE IIIA.—*Percentage Distribution of Phthysical and of Non-Tuberculous Males in Three Groups, arranged according to Relation to Height-Weight Ratio Standard (1.00).*

Series.	Group.		
	1.1 and over. "Robust."	0.95 — 1.09. "Indifferent."	Below 0.95. "Weedy."
Phthysical ...	24.1	57.2	18.6
Control ...	46.9	42.4	10.6

The control series thus show a marked superiority in physique. That the larger proportion of mouth breathers in the phthysical set can account for this is negated by the observation just mentioned, namely, that the general average of physique among the consumptives was higher in the mouth breathers than in the remainder. There seems a tendency, too, for consumptives of a naturally robust build to fall ill at a later age than others. Thus the mode in ages of those having a relation to height-weight ratio standard (1.00) of 1.1 and over, was four years in excess of that of the remainder. To speak subjectively, there is no doubt whatever that pulmonary phthisis is essentially a physically selective disease.

D.—*An Analysis of Family History.*

As already stated, this is confined to four relatives, parents, brother and sister; and to one clinical kind of tubercle, pulmonary. In the phthysical series only, no exclusion was made of cases unable to give information on this subject, a factor which is a little neutralized by the likelihood of a man who has become consumptive making inquiries on this point at the time of falling ill. In both series the proportion is probably rather under the truth owing to lay reluctance to own to a phthysical family history; this is perhaps more operative in the case of a consumptive. The physically selected classes are excluded in reckoning family history, as it was found that, probably owing to service abroad, they lost touch with their relatives to such an extent as to make their evidence worthless.

In the control (on 200 odd cases) the percentage of those giving a phthysical family history came out at 19.1. Against this cannot be put the gross total for the consumptive cases, as, of course, in any comparison account must be taken of the possibility of infection. In 175 cases something was done to exclude this by making inquiry as to the circumstances of the death of each relative, and in cases where there had been contact, not reckoning a family history in which less than four years elapsed between the death of a relative and the patient himself falling ill. Conversely, in ad-

vanced cases care was taken not to include any phthysical relative who might easily have become infected by the patient. Thus, in these 175 cases a family history was given in 49 instances (28 per cent.). Eight cases were excluded for reasons just mentioned, the percentage thereupon dropping to 23.4. The correlation of family history with mouth breathing (traumatic cases being left out of consideration) was then sought for in both series (in the controls the first hundred cases were excluded as before), with the following result:

TABLE IV.—*Correlation of Mouth Breathing with a Family History of Pulmonary Phthisis.*

Series.	Percentage Giving Family History.		
	All Cases.	Mouth Breathers.	Remainder.
Phthysical ...	22.9	25.7	19.1
Control ...	20.0	27.5	16.4

There are to be noticed, of course, the preponderance on the side of the mouth breathers, and particularly the large number of non-tuberculous mouth breathers giving a family history of phthisis. It is suggested that this is significant in view of the fact that many causes of mouth breathing are described as being hereditary. The following cases may be quoted:

S. (Northwood Sanatorium), 19, cobbler, had a deviated septum, with some occlusion of the right nostril, and was markedly underhung. He stated that his mother and two of her brothers were similarly underhung, and that both of these maternal uncles * died of phthisis.

C. (Victoria Park Hospital), 26, fitter (noticed above), stated he had lost a brother from phthisis, who was overhung and a constant mouth breather like himself.

C. (Mount Vernon Hospital), 24, brewery labourer, had a deviated nasal septum, with noticeable external irregularity of the nose. He stated that his mother had the same peculiarity.

D. (Dental Hospital, control case), 23, railway booking clerk, had considerable nasal obstruction from deviated septum, and habitually breathed through the mouth. He stated that his father, who died of phthisis, did this too. A brother and a sister had also died of phthisis.

R. (control case), 26, brickfield labourer, a mouth breather from the same cause, gave a similar history of a brother.

Generally it was noticed of the mouth breathers that a family history of phthisis was most frequent in those in whom the condition was most marked. Further results were that those cases due to a deviated septum gave a family history nearly twice as often as did those probably due to adenoids; that the phthysical cases and the controls hardly differed at all in the proportion of consumptive parents, the excess in family history of the former being due to a more frequent history of phthysical brethren; and that both series agreed in showing more phthysical fathers than mothers. These two last results are, of course, respectively in accord with and in disagreement with some previous ones.

The influence of physique was next taken into account.

TABLE V.—*The Interrelations of Physique, Mouth Breathing, and Phthysical Family History.*

Relations to Height-Weight Ratio Standard (1.00).		Percentage of Cases giving Family History.	
Group.		Series.	
		Phthysical.	Control.
1.1 and over, { mouth breathers ...	...	33.3	30.4
"robust" { remainder ...	...	10.5	10.4
0.95-1.09, { mouth breathers ...	...	25.0	36.3
"indifferent" { remainder ...	...	18.4	13.8
Below 0.95, { mouth breathers ...	...	20.	7.6
"weedy" { remainder ...	...	31.2	33.3

There are, of course, many possible inferences from these totals: To begin with, a notable consilience of

* This case is, of course, not included statistically as showing family history.

the two series is seen as regards the association of phthisical family history with mouth breathing on the one hand, and with deficiency of physique on the other. For the latter, some actuarial results⁵ may be compared; of two classes of American lives, the one included persons of ordinary weight who had had at least one parent dying under the age of 70 of a disease distinctly stated as consumption, phthisis, or tuberculosis. This class showed excellent results both before and after five years from the date of insurance. The other consisted only of those of positive light weight (whose height-weight ratio was below the lower of two standard height-weight ratios mentioned in a "Table of Weights") who had had at least one parent dying under 70 years of any kind of disease of the lungs. The young entrants of this class are described as having been decidedly bad risks. The exact cause of death is not stated, but in view of their age, tuberculosis seems very probable. In accordance with Table V, further, are the before-mentioned observations that the most marked cases of mouth breathing gave a phthisical family history oftenest, and were found more generally among the robust in the case of consumptives, but elsewhere in the non-tuberculous. Thus, in the phthisical series, the "robust" mouth breathers show a family history rate of 33.3 per cent., and the "indifferent" mouth breathers 25 per cent., a proportion which is reversed in the control set of cases. Tables II, III, and V may also help to explain, if proleptically, the finding in Table IV that the difference between the number of cases giving a family history in mouth breathers and in non-mouth breathers respectively is greater in the non-tuberculous series than in the phthisical. As has been seen, the controls were much the superior in physique, so that there were a far fewer number of non-mouth breathers among them to give a phthisical family history originating in poverty of physique. The mouth breathers, again, were not physically the pick of their number as was to some extent the case with the phthisical mouth breathers, so that in the control, more often than in the phthisical set, perhaps, the mouth breathers could give a phthisical family history which was associated with bad physique.

A statement has been seen to the effect that tuberculous subjects showing a low opsonic index give a family history of tubercle disproportionately often. As has just been stated, phthisical family history seems to be commonest in cases showing mouth breathing or deficient physique. Recent work⁶ shows that the opsonic index of consumptives varies so much with the activity and with the stage of their disease that in comparatively few cases can a figure be fixed upon as characteristic; and no conclusion drawn as to what it was in health. Yet much might be learnt from the relations in non-tuberculous subjects of a family history of phthisis with mouth-breathing, deficient physique and an abnormal opsonic index, since all three seem possible as factors by means of which the aggregate of consumptives may be split up into groups etiologically disparate enough for useful comparison.

SUMMARY.

The following reasons are advanced in favour of the view that an hereditary causal relation to pulmonary phthisis may be predicated of mouth breathing and of deficient physique:

1. That both conditions prevailed to a much greater extent among consumptive males, quite independently of their disease, than among a comparable series of non-tuberculous men.
2. That whereas some causes of mouth breathing, as also physical build, are known to be hereditary, a family history of phthisis is much more often given by those who are mouth breathers or of deficient physique—whether they be healthy or phthisical—than by others.
3. That the physique-incidence of mouth breathing in phthisical subjects probably differs from that in the non-tuberculous.
4. That consumptives of a naturally good height-weight ratio fall ill, on an average, at a later age than do others.

CONCLUSIONS.

Some apology is required before setting these down here, for the admission of deficient physique to the position of an hereditary predisposing cause of so common a disease as pulmonary phthisis involves, of course, a consideration of the scope of the latter as a racial

physically-selective agent. Of particular interest is the question whether such selective action has been increased or impaired by the continuous fall in the tuberculous mortality-rate brought about in the last forty years by sanitary reform; and, if the latter, as to the extent to which improved individual culture—particularly puericulture—has counteracted racial physical deterioration. If one turns to the near future, with its probable gift of widely-effective therapy in the shape of a combination of bacteriological with sanatorium treatment—very likely, too, of bacteriologically-produced immunity—there presents itself the problem of possible national physical degeneration resulting from reproduction by recovered consumptives or immunized weaklings. The question, in short, is as to whether on these grounds alone some physical selection for parenthood is or is not required as a complement to that individual hygienic culture which present-day sanitation apparently deems a panacea.

As regards mouth breathing and its causes, there would seem to be in their operative rectification an opportunity for widespread prophylaxis and treatment. It is suggested⁷ that in the first respect the experience of the physically-selected classes might be useful. A candidate for admission to these can be made to undergo the appropriate measures, and, moreover, could be rejected if they were not successful. Any resultant effect on the rate of invaliding for tuberculosis could be exactly measured. As for treatment, the cardinal principle of removal of the cause dictates that a thorough search should be made for defects of the upper respiratory tract in consumptives, and, what is more important, that all such defects should be energetically treated. It would seem reasonable to suppose that lack of this may often be a contributory cause of patients failing to maintain arrest after leaving open-air sanatoriums. The support that mouth breathing as a predisposing cause of pulmonary phthisis gives to the inhalation theory of infection is, of course, very great.

Cordial thanks are tendered to gentlemen connected with, among others, the following institutions: Royal Victoria Hospital, Netley; Royal Herbert Hospital, Woolwich; Crossley Sanatorium; Liverpool Sanatorium; National Sanatorium, Bournemouth; Northwood Sanatorium; Mount Vernon Hospital; Victoria Park Hospital; City Road Hospital; Dreadnought Hospital; Convalescent Home, Walton; Royal Dental Hospital; Charing Cross Hospital; Miller Hospital.

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TWO CASES OF AMOEBIC ABSCESS OF LIVER

CURED BY ASPIRATION AND INJECTION OF QUININE INTO THE CAVITY WITHOUT DRAINAGE.

BY

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INTRODUCTION BY DR. LEONARD ROGERS.

NEARLY four years ago, in a paper read before the British Medical Association,¹ I showed that living amoebæ can be found in the walls of every case of tropical abscess of the liver examined at the time of or shortly after operation, as well as *post mortem*, if they have not been previously drained for some days, and at the meeting of the Association last year² I confirmed that statement after much further experience, and also illustrated the great value of the presence of leucocytosis in assisting the early diagnosis of the disease. Moreover, in the first paper I showed that two-thirds of tropical abscesses of the liver seen in Calcutta are free from staphylococci and bacteria when first opened, even in the late stage of the disease so commonly met with in native patients, while as a matter of fact in nearly half of the remaining cases but one or two colonies of cocci were obtained on culture, which were probably accidental contaminations or at least played no part in the causation of the disease, an opinion which is borne out by the fact that in Case 1, recorded below, the liver abscess was cured by aspiration and quinine injection in