Life insurance and general practice / by E. M. Brockbank.

LIFE INSURANCE
AND
GENERAL PRACTICE

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OXFORD MEDICAL PUBLICATIONS

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BY

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DEDICATED TO

MY FATHER

PREFACE

THE somewhat lengthy consideration of the routine of making medical examinations for insurance which occupies the first portion of this small work contains many points which I have found of importance in my own practice, and which I therefore hope will be of assistance to those who make similar examinations for the first time, or who have comparatively little experience of this responsible part of a medical man's professional work. The information which appears in Section II has been collected from various sources, and I venture to publish it now in the belief that it will prove to be as interesting and instructive to men who have even an extensive experience in insurance work as it is to me in my own practice.

I have much pleasure in thanking Dr. Dixon Mann for his kindness in reading the work as it went through the press, and in affording me much useful advice in the subject matter of it—especially

in those sections which deal with the urine. I have also to thank my friend, Dr. Albert Ramsbottom, for his valuable assistance in the reading of proofs.

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SECTION I

THE MEDICAL EXAMINATION OF AN APPLICANT FOR INSURANCE

CHAPTER I

INSURANCE POLICIES AND FORMS; EXPECTATION OF LIFE; CLASSES OF LIVES

Commoner Types of Insurance Policies.—Insurance policies vary considerably in the risks they are intended to cover, and according to the requirements of the proposers. Those most commonly issued are:

A. For Good Lives.

1. *Whole Life.*—In these the sum assured is payable on the death of the holder of the policy, who can pay his premiums either until his death, or for a limited number of years.

2. *Endowment policies* are terminable, and the sum assured payable, after any number of years agreed upon, generally about the age of 50 or 60, or on the death of the proposer if this occurs before the determined age.

3. *Short term* policies are taken out for any number of days, weeks, months or years. Very often they are to cover extra risks of a journey

abroad, or to guarantee a borrowed sum of money in case of the borrower's death before payment of his debt.

4. *Contingent policies* and joint-life assurances generally deal with two lives, the sum assured being payable to the survivor on the death of the other party to the policy.

B. For Impaired Lives.

Any one of the above-mentioned policies or modifications of them may be issued to a proposer who is not a good life, yet has an insurable value, but the premium charged will be increased above the ordinary rate or "weighted" to protect the company against the extra risk of the policy.

Expectation of Life, or Average After-lifetime.—All insurance work is based on the so-called *expectation of life* of healthy individuals. This has been calculated very carefully from an immense number of statistics of the experiences of insurance companies, and it is on the basis of this "expectation of life" that all insurance business depends, and the premiums charged are calculated. A better term than expectation of life is "average after-lifetime." This indicates the average number of years which is lived by all persons of a common age from that age up to the extremity of life (Pollock). It is impossible to foretell how long an

unhealthy individual will live, or to say how many years he is really older than his age in years, but here again reliable information has been collected over a number of years, from a series of similar cases, which guides the experts who consider the medical reports in determining the value to be put on these lives for insurance purposes. The ordinary medical examiner, as a rule, has none of this information at his disposal, and he will be quite at a loss, especially when he is new to the work, to say the age at which the proposer will die or the number of years to add to those of the weak life before him to bring them up to the age of the tissues, although he is asked to do this in his report. This does not matter, provided he reports so fully that the experts at the head office can see through his eyes the applicant, and form a correct idea, from their special knowledge and experience of similar cases, as to the value of the life for insurance. Therefore, although it is advisable for the medical examiner to express his view of the probable expectation of life, it hardly matters if he is unable to do so, but leaves the decision to the Head Office officials. They certainly will form an independent judgment on the facts submitted for their guidance whatever the examiner suggests.

Expectation of Life.—The following table will show the years and decimal parts of a year

that persons at each age may be expected to live, according to the healthy male table, deduced from the mortality experience of Life Assurance Companies. (Hall.)

Age.	Expectation of Life.	Age.	Expectation of Life.
15	46·161	40	27·399
16	45·292	41	26·679
17	44·438	42	25·956
18	43·609	43	25·233
19	42·817	44	24·511
20	42·061	45	23·792
21	41·326	46	23·079
22	40·603	47	22·375
23	39·879	48	21·679
24	39·147	49	20·989
25	38·405	50	20·306
26	37·658	51	19·627
27	36·908	52	18·951
28	36·162	53	18·281
29	35·419	54	17·618
30	34·681	55	16·962
31	33·946	56	16·316
32	33·213	57	15·679
33	32·481	58	15·052
34	31·748	59	14·435
35	31·016	60	13·830
36	30·286	61	13·237
37	29·560	62	12·659
38	28·838	63	12·095
39	28·118	64	11·547

A simple method of approximately estimating the average after-lifetime of a person is that known

as Walford's rule. For ages between 20 and 45 deduct the age from 96 and above 45 from 90 and halve the remainder.

Proposal Forms and Reports. — Certain forms have to be filled up for every proposal for insurance.

1. The *Proposal Form* is filled in by the would-be insurer himself. In it he states the nature and amount of the policy which he wishes to take out. He gives his age, his own previous medical history and his family history, with the ages and causes of death in any near deceased relatives, and names two friends, who have known him personally for some time, to whom the company can apply for confidential information as to their knowledge of his eligibility or otherwise for insurance.

2. *Referees' Reports.*—The questions asked of the friends are on separate forms and constitute the referees' reports. They generally refer to the proposer's mode of life and habits. The medical examiner often sees these reports, which may or may not be quite reliable.

3. The *Medical Examiner's* report, as a rule, consists of two sections. In the first, much of the information required is similar to that given on the proposal form, but, as ascertained by a medical man, it is generally fuller, more accurate, and therefore more valuable than proposer's original

information. This information is signed by the proposer in the presence of the medical referee. In the second part of the report, the medical examiner gives the results of his own investigation of the applicant's state of health, and ends by stating his opinion of the value of the life for insurance purposes.

The exact form of the medical officer's reports varies with different companies, more or fewer questions being put to the examiner to answer. Some companies have most lengthy reports to be filled in, the actual accomplishment of which takes a long time. Other companies submit for the examiner's inspection the original proposal, which he checks with his special knowledge, and then they leave a blank space for his opinion of the insurable value of the life, judged by the result of his examination. He has no questions to answer as to the condition of the various organs, etc., simply to state the conclusion he arrives at. For careful, conscientious examiners this form is absolutely reliable on the "no news being good news" principle. If any defects are found they must be recorded, and any reasons given for not viewing the proposal as "First Class." Such a form takes much less time to fill up. But a fuller form is better for the use of medical examiners who do not do much insurance work, and for a certain type

of man who will not examine all organs unless he is asked definitely about their condition.

Information from the Private Medical Attendant of a Proposer.—It not infrequently happens that an insurance company will write to the private medical attendant to an applicant for insurance, asking for information as to the habits, especially in relation to alcohol, and the present or previous health of the proposer, generally on the advice of the medical examiner to clear up some doubtful point. A fee is always enclosed or offered for the information. Of course, no medical man is justified in giving such information without the consent of his patient, and it is the safest plan to get this permission in writing, even though the proposer should have given the name of his doctor to the insurance company when asked for it for purposes of further inquiry. If the private medical man accepts the fee and replies to the questions he is bound to answer them fully and to disclose all information which may influence the decision of the directors.

Classes of Lives.—1. *Altogether unexceptionable* or *first-class* lives are those with good family and personal history, and no defects of constitution. They are heirs to no ailments tending to shorten life, but rather to the ages of their forebears.

2. *Second-class* lives are those in which there

is some weak spot in the family or personal history, or some slight departure from the normal in the physical condition, which takes away the unexceptionable character of the proposal, but still allows it to be acceptable at ordinary rates as a fair business risk. The majority of proposals are of this class.

3. *Doubtful, risky or third-class lives* are those in which there is a distinct chance of the proposer not living his expectation of life, but which are acceptable for insurance with an addition to the premium—the amount of which has been calculated by actuarial experience of a number of similar proposals. If the proposal be placed in this class, the examiner is generally asked to state the number of years which he thinks ought to be added to the life to make it safe to accept, or to state the limit he would put to the expectation of life.

4. *Uninsurable* lives are those with some gross fault in family or personal history or applicant's condition which makes it very probable that the life may die so soon after his proposal that any premium to cover the risk would prohibit the policy being taken out by the proposer.

Fraud.—In making an examination for insurance the medical man must always bear in mind the possibility of fraud and deception on the part of the proposer. Such fraud may lie in an attempt

to substitute a healthy man, who will pass an examiner, for an unhealthy one likely to die soon in whose name the policy will be taken out; in trying to hide some defect of constitution, generally recognizable by the state of the urine; or in suppressing evidence of family or previous medical history of vital import to judging prospects of life.

Substitution is very difficult, and though it does occur in England it is only very rarely; it is met with more frequently in America. It is, therefore, of the greatest importance for the examiner to note any scars, birth-marks, tattoo marks or peculiarities which might lead to identification in case of legal proceedings.

Defects of constitution are difficult to hide if an examination be conducted thoroughly, but attempts to hide them are not uncommonly made in England and elsewhere. The most likely means of attempting this is to substitute a healthy for an albuminous urine, or one containing sugar. Therefore, it is absolutely necessary to obtain a specimen of urine which you are sure was passed by the applicant. The possibility of deception is dealt with under the urine section.

Female proposals especially seem to excite suspicion, as a thorough examination is more difficult than in males, and possibilities of suppression of information about pelvic diseases are very great.

Family and Personal History.—The age may be stated wrongly in order to benefit by a lower premium, and many companies require proof of age. If the medical examiner doubts the accuracy of the stated age he must say so, and give his reason for his doubts. Causes of death of relatives may be wrongly stated, and unless death certificates are asked for there is no means of checking these false statements.

CHAPTER II

MEDICAL EXAMINATION

Object of Medical Examination.—In insurance examinations the medical man must remember that his object is more often to *find out* disease or indications of it than to *diagnose* it.

In the first place many proposals for insurance are made by people who think that they are in perfect health, but who have some constitutional defect which renders their acceptance more or less undesirable, and which it is the work of the medical examiner to discover.

Secondly, whilst in the very great majority of cases a proposal for insurance is made in all honesty, it must ever be borne in mind that some men and women will apply for policies knowing that they have some defect which is only to be found out by the most careful examination, and they hope to elude the vigilance of the medical man. If their defect is discovered at one office they may propose

at another. It may be that they get to know that certain medical examiners are not as careful as others, which undoubtedly is the case, as well as it is a fact that all insurance agents are not as scrupulously careful of the best interests of their offices as they ought to be.

As a rule, if a man is refused by an office, any other insurance company can know of the fact should they receive a proposal from him. But this disclosure can be avoided by the applicant "withdrawing his proposal," when he knows the medical examiner will not pass him, such information having been obtained from the examiner, or from the agent. Then, if the proposal is withdrawn before it goes before the directors, an unscrupulous applicant may, without much fear of detection, state to the agent of another insurance company that he has never had a proposal refused—the consideration of his case by the directors constituting the "proposal," in his exact phraseology. Therefore it is all important for the medical man to be on the alert to discover indications of weaknesses of constitution.

When a proposal is "withdrawn" the fee for the examination is paid either by the proposer or by the agent, and not by the company, although the referee may have filled in a form in the ordinary way.

As a rule a proposer will voluntarily tell the medical referee or the company whether he has been accepted for insurance before, or whether he has been refused, or accepted at increased rates—many companies have a question on this point—but occasions arise not infrequently in which important information is deliberately withheld. Therefore the medical referee, whilst assuming that the proposer has been absolutely honest in his replies to all questions put to him, must take every means, and they are plentiful to him, of checking the truth of these answers; and in the majority of cases his report on applicant's own medical and family history will contain fuller and more accurate information than will the proposal form, with identical questions, which has been filled in by the proposer, either with intent to mislead or with all honesty and desire to disclose every fact of material value to the estimation of his expectation of life.

It not uncommonly happens that a man who either has, or thinks he has, some defect of constitution or family history will consult a doctor as to whether he would be accepted for insurance if he made a proposal. He pays the fee for the examination himself, and after hearing the doctor's opinion may or may not propose for insurance. There is nothing objectionable in this.

Method of Examining Applicant.—Applicants

should always be examined *by themselves*, for they are then more likely to disclose important previous illnesses than if a third person be present.

The medical examiner should take every care to set nervous applicants at their ease and reduce to a minimum the unpleasantness of what is, to some natures, a trying ordeal.

The applicant must be examined in a *good light*, and for this daylight is much better than any artificial illumination ; under the latter slight, but very important, colour changes are so apt to be unseen. Jaundice, for instance, when of moderate degree, is invisible by gaslight. The light should fall at right angles to his chest, but very often it is of material advantage to let it fall tangentially when looking for slight alterations in movement, or for pulsations.

The employment of the private medical attendant for examining for insurance is not always advisable. In many cases he may be the best man for the purpose but often he may not like to disclose all that he knows of his patient's previous history, for if he did so he might lose his patient if the latter were not actuated by honest motives.

All questions must be put discreetly, for some of them, especially those about syphilis and gonorrhœa, may give offence to many proposers.

Whilst the examiner must always remember

the possibility of fraud it must be assumed that the applicant is acting in good faith, although very frequently it will be found that material evidence has been omitted, apparently deliberately, in a proposal form. For instance a very large goitre was present in one proposer whom I examined who told me that he had no physical deformity.

Applicants very often forget previous illnesses, and it is only in the course of conversation and judicious cross-examination that evidence of them is forthcoming; and the statement made to the medical man even as to previous health has very frequently to be altered before an examination is concluded.

Time of Examination.—It is better not to examine applicants *too soon after a meal*, as very frequently a considerable amount of fluid has then been taken, and, with the diuretic effect which the thought of the examination has on some people, the urine passed is too watery, a specific gravity of 1002 being not at all uncommon under such conditions. This necessitates another visit. It is also most inadvisable, for his own sake, for the proposer to take sweet wine, especially champagne, at a meal just before undergoing a medical examination, or to go up for examination too soon after the good living and drinking of holidays, such as Christmas. Traces of sugar may occur under

such conditions when they would not otherwise be found, and the proposer must be put back. Where the proposer loses, the company probably gains in this matter, for a defect has been unintentionally revealed and the risk of insuring a subject of temporary glycosuria avoided, or knowingly undertaken. It would be a good thing if agents who arrange for the examination would tell the proposers that the doctor will require a specimen of urine. It is very aggravating to hear the remark, as is often the case when the applicant is asked to pass some water, "Oh, I wish I had known you would want to examine my water: I have just been to a lavatory." Then another visit is necessary.

The medical examiner should be in some *accessible place* for his clients, and if he has rooms above the first floor it should be where an elevator is available. If a person of nervous temperament has to climb up two or three flights of stairs to undergo a dreaded ordeal, it is very probable that he, or she, will have a troublesome palpitation which would have been avoided by easier access to the consulting rooms.

For a proper examination to be made, the applicant should *strip to the waist*, and many mistakes will be avoided by adopting such a procedure. But where you will find a vigorous young man, glorying in his strength, willing, and glad to strip

on a warm summer's day, you will meet with many more men who will object very strongly to do so, especially on a cold day in winter, and between these two extremes are all sorts and conditions of men.

The essential point is to *see the front of the chest*, especially under the clavicles and for this, in presumably good lives, it is generally sufficient to have the shirt taken off and the vest pulled well up, so that the collar bones can be seen. Then, if the buttons of the vest be undone as well, the movements of the chest can be easily made out, and the important evidence afforded by percussion and auscultation of the apices of the lungs readily obtained.

If there is any possibility, from family or previous medical history, of any pulmonary trouble being present the vest should be removed, and no objection will be raised if the reasons for this be pointed out to the proposer.

With female proposals the examiner has generally to be satisfied with seeing the chest under the clavicles, and under the left breast.

Drug Habits.—It may be important to see the arms or shoulders, especially if a morphia habit is suspected, for the scars of many hypodermic injections will give very definite evidence on the point.

Routine of Examination.—The examination should be commenced by obtaining the information about the proposer's own previous ailments, and his family history, which most companies require the medical man to inquire into, and to have this signed by proposer, as being a correct statement to the best of his knowledge and belief. Legally, if any material information be withheld by proposer, as for instance of his having had occasional glycosuria, the policy might be made void should proposer die of some condition, the occurrence of which might have been expected had the information in question been disclosed.

Most companies require answers to a series of questions as to whether proposer ever suffered from a number of ailments or diseases which have an important bearing on estimating the future health and duration of life. The list varies with different companies. Theoretically it ought to be sufficient to ask whether proposer has ever required medical or surgical assistance at any date, and, if so, for what ailments. The positive information then obtained would be recorded, and in the absence of any positive information it would be assumed that proposer had a clean bill of health. But although this question may be sufficient with many applicants, it will often fail to obtain accounts of previous illnesses which are honestly only remem-

bered when asked specifically about. On the other hand, if a proposer intend to mislead by his answers he will do so in whatever way he be questioned.

Relation to Applicant and Company.— The medical examiner for an insurance office has a position of great responsibility. He must act in the best interest of both the office and the applicant, and nothing can advance these interests better than a careful examination and a full report of the results obtained. It must be remembered that the report is to be sent to men, namely the Head Office Medical Adviser, the Actuary and Directors of the Company, who do not see the proposer, but with whom the ultimate decision as to eligibility or otherwise for assurance rests, and therefore every symptom or physical sign which can give any indication, especially to the Head Office medical referee, as to proposer's prospects of life must be scrupulously noted.

Finally, the examiner is requested to give his own conclusions as to the value of the life, and much weight is given at the Head Office to this opinion; for he has *seen* the proposer and has thus been able to judge from the personal appearance and manner, as well as from the investigation of the various organs, whether the life *looks* to be as good, or bad, as the results of the examination might lead one who *has not seen* the proposer to

conclude. There are certain cases with good histories and no adverse points to be made out which impress the examiner as being uncertain or doubtful—thus an alcoholic habit may be suspected in spite of all statements to the contrary. On the other hand, a proposer below the normal weight for height may be known to the examiner to be a man of careful and healthy habits, or he may impress a medical man, with no previous acquaintance, as being a better life, in reality, than he is on paper. Any points such as these should be noted and they will receive respectful attention at the Head Office.

Further Information.—If the examiner should think it advisable to obtain more information as to habits, especially in the matter of the amount of alcohol taken, or if he thinks a special report from applicant's private medical attendant will clear up some doubtful, but important, point in the previous medical history, he should state his opinions and leave the further responsibility to the Head Office.

The Nature of the Report should not be disclosed to the Proposer.—The medical examiner should never tell the nature of his report to the Head Office to an applicant for insurance. Reports are received by the actuary of the company from referees or friends of the proposer, and these are highly confidential, and most valuable to the

company in deciding on any proposal for insurance. Certain information may be afforded in these referees' reports which will decide the directors to refuse the life although the medical report may have been quite favourable, and no information, beyond the fact that the policy cannot be accepted, is afforded the proposer. Therefore, if a proposer knows that he has received a clean bill of health from the medical examiner and yet been refused he may suspect his friends, and much trouble be thereby caused. Moreover, if the report be unfavourable the proposal may be withdrawn and there will be no record of it to protect companies from attempts to pass a more lenient examiner.

If, in the course of the examination, some unsuspected defect has been discovered in the applicant's bodily condition, which makes him unacceptable for insurance, either temporarily or permanently, steps should be taken through the Head Office to advise him to consult his own medical man. The medical examiner is under no obligation to do more than this, for he is acting for the company, who pay his fee, in making the examination; and he certainly is under no obligation to give medical advice or any information as to weak spots to any one rejected who may call and see him after the decision of the Head Office has been received, as not uncommonly happens. If a rejected applicant

should so call, a hint may be given as to the abnormal condition for the information of his private medical attendant, to whom he should be advised to apply for treatment.

Conclude the Report as Soon as Possible.—It is always advisable to finish the examination and to fill up the form fully before the proposer leaves the room, otherwise some questions may be found to have been overlooked, and a further visit from proposer will be necessary.

Another important point is, in addition to completing the report when this is possible, as it is in the majority of cases, to send it off by the next post, so that it can be received and considered at the Head Office without delay. Many cases, however, arise when a further visit from the proposer is necessary ; for example it may be necessary to see whether a case of tachycardia is due to the nervousness of a first visit to a medical examiner, in which case probably the pulse rate will be practically normal next day, or to find out the true nature of cases of albuminuria. When these further visits are necessary they should be arranged for an early date, as the office wants the full report as soon as possible, because some applicants, if kept in suspense more than a few days, may be irritated at the delay and go to some other company or withdraw their proposals altogether. The examiner

should therefore try to settle the doubtful point as soon as possible and report to the Head Office, and if the officials there would like a further interview between the examiner and proposer they will say so, and the responsibility for further delay rests with them.

CHAPTER III

MEDICAL EXAMINATION (*continued*)

Family and Personal History.—The information which we require to enable us to estimate prospects of life is divisible into two broad groups. These, taken in the order of their importance in the majority of proposals for insurance which are made by people over 30, are :—

1. *Personal History and Condition.* The proposer's physical condition, previous medical history, and personal habits and circumstances.
2. The *family history*, that is, the incidence of certain disease in ancestors and collaterals, and length of life of the same.

In certain cases the possibility of inheriting family tendencies to health or disease is the dominant factor, as for instance—family histories of early or late death ; of cancer in females ; of tuberculosis, both in males and females ; and of vascular diseases, etc.

But whereas a man with poor family history and excellent personal condition and history may

often be accepted for whole life insurance at ordinary rates, one who has a good family record, but who has bad habits, and is in poor condition, would probably not be accepted at all, or only for a limited term of years or with increased premium.

Some medical referees attach the greatest value to family tendencies, whilst others look upon the proposer's own history as more important. The safest plan is to go fully into both, and deduce conclusions as to the prospects of life from all the evidence thus obtained, and it will be on this plan that any advice offered in this book will be based.

For convenience, the family history will be considered first.

Family History.—The questions as to family history of proposer are most important, and the examiner should take all steps to have them answered as accurately as possible, even delaying the sending in of his report until copies of the death certificate of any deceased member be obtained when he cannot identify the cause of death. "Something internal"; "childbirth" or "bronchitis"; "liver disease" or "dropsy," etc., are frequently given as *causes of death* in parents when cancer, consumption, or alcoholic excess were the actual fatal diseases. A medical man can very often, by questions as to the duration and nature of illnesses, elucidate such vague terms and provide more useful

information for estimating the chances of onset of any hereditary complaint. The causes of death of brothers and sisters when infants and young children, are rarely forthcoming, but they also are, as a rule, not material, the exception being in the case of a marked history of tuberculosis.

The *age of death* is also most important. When one parent or both parents have died young from other than hereditable diseases the vitality of the family should be inquired into by asking for information about length of life of grandparents on both sides; or of uncles and aunts. Most companies ask on their forms that this should be done, but a conscientious examiner should find this out on his own accord, because probably he will be able to improve the chance of acceptance of an applicant whose parents have died unusually young. A history of longevity is also highly important (*see* Heredity).

Personal History of Applicant.—It is essential to have an accurate statement of any illnesses of note which the proposer may have had, that is, anything severe enough to have required the advice of a medical man. Ailments of childhood are generally forgotten and, as a rule, are not important in proposers over twenty. As exceptions to this, however, may be mentioned tuberculous affections, especially with a family history of this

disease ; scarlet fever which may explain a residual albuminuria or be the cause of a serious ear lesion ; rheumatism and chorea ; rickets ; congenital syphilis, and infantile paralysis. Any permanent lesions left by these illnesses would however, even if not disclosed, or if unknown to proposer, be recognizable on a careful examination.

Illnesses at, or about, puberty may have a more important bearing on after health. Of these rheumatism, scarlet fever, pleurisy, acute nephritis are the most important.

A history of typhoid fever is important in view of the frequency with which cholelithiasis or cholecystitis follows this disease. If the attack were of recent date, the region of the gall bladder should be palpated.

Illnesses at all other ages should be recorded, and most insurance companies specify a greater or smaller number which they consider to have an influence on future health.

A history of *gonorrhœa* or *syphilis* ought to be definitely inquired about, for even if nothing should develop in later life from these diseases, positive information on the point, one way or the other, will enable the actuaries to collect more reliable statistics than they now possess as to whether applicants who have had either disease, but especially syphilis, and have apparently no traces left

at the time of insuring, should be taken at ordinary rates, or with some addition to the premium (*see* Syphilis).

A history of *gout* has an important bearing on the value of the life, especially in a proposer who takes alcohol regularly, or whose father died from its effects.

Vaccination.—Most offices ask whether the applicant has been successfully vaccinated, some requiring information as to the number and size of the marks. A previous history of an attack of small-pox is held to be satisfactory evidence of the unlikelihood of this disease occurring again.

Muscular Rheumatism.—Many proposers for insurance complain of having muscular rheumatism. It is generally slight, and does not confine them to the house. More troublesome cases are those of lumbago, which often runs in families. One form of so-called lumbago may be of renal origin; it is worse when the subject of it is in bed, and passes off after he has been up for a while. It has been suggested that such "renal" cases are caused by collections of uric acid in the pelves of the kidneys. This is the type of lumbago for which older practitioners used to prescribe a bottle of gin which, with the hot water consumed with it, increases the renal effluent and removes the source of pain.

CHAPTER IV

GENERAL INSPECTION OF THE PROPOSER

In looking carefully at the proposer's face and "taking stock" of him generally, the medical examiner will not expect, in the great majority of cases, to find any evidence of disease which is noticeable enough to attract the attention of the applicant or of the insurance agent. Neither of these interested parties to a proposal for insurance likes to meet with a rejection, and if a man looks ill he is kept back until he is more presentable. As already stated, what the examiner will look very keenly for, are slight signs which may point to *unsuspected physical weakness* and which are either not recognizable, or if noticeable, not appreciated at their proper worth by a lay observer. He must also always be on guard against overlooking conditions unacknowledged by the proposer, but known to the latter to be weak points for insurance purposes.

Therefore the *general appearance* of a man is a very important question to answer. In the great

majority of cases a steady good look will enable the referee to describe a proposer as "healthy looking." But there are many points which may be present which, though small, are like straws showing the direction of the drift or more rapid movement of the life of the proposer.

Height.—The height is, as a rule, measured with the boots on, and the weight with some of the clothes taken off. Allowing an inch for the height of the boot heel, the weight of clothes, without coat and waistcoat on, which will equal about 7 lb., gives a fairly accurate allowance for the inch in height. As will be seen in Section II, the best height for insurance purposes is from 5 ft. 7 in. to 5 ft. 9 in., and the farther away from these measurements, the more undesirable the insurance. Therefore, very tall or very short men must be accurately measured (*see* Section II).

Weight.—It is always advisable in cases of *obesity* or undue *leanness* to state how the measurements were made, if in boots, or stockings, and in what clothing.

Whether the weight is *stationary*, or whether it is *increasing* or *diminishing* are important questions in many instances. Loss of weight, especially when rapid or progressive, may be a serious warning of the onset or presence of some severe illness, especially of phthisis. The best weights for the

above-mentioned heights are from 10 st. 8 lb. to 11 st. 3 lb. and the further the actual weights of applicants of these heights get from the ideal weights, the less valuable the case for insurance (*see* Section II).

Steadily increasing weight, as a rule, points to growing obesity.

The **general build** of a man may be important when the weight is too light or too heavy. Short thick-set men of plethoric appearance and with short necks are likely subjects for apoplexy.

A proposer of large build, that is, with big bones and little flesh, will weigh more than a man of the same height of slighter build and some more flesh, and yet may not be as good a life. And, on the other hand, a big-boned man can carry extra weight better than one of small build.

Arrested Development.—Any suspicion of infantilism, cretinism, dwarfism or premature senility must be carefully inquired into and fully reported on.

Neck.—The presence of *scars* of old abscesses in the neck is important. Careful inquiries must be made as to the cause of the scar, whether due to abscess after scarlet fever, or to caseous tuberculous glands. If the scar is long and the result of extensive dissection of glands, full details of the condition and cause of the enlargement of the

glands which necessitated removal must be obtained.

Visible throbbing of the carotids may mean aortic disease or pure nervousness. Visible pulsation in the temporal arteries may be due to thinness of the superficial tissues as well as to aortic incompetence. A twisted tortuous condition of the superficial arteries is suggestive of arterio-sclerosis.

Thyroid Gland.—Fullness at the root of the neck must be carefully looked for, as enlargements of the thyroid gland often occur, and not uncommonly without the knowledge of the applicant.

Hands.—The hands should always be inspected for evidence of disease, such as the clubbing of the fingers with the puffin-beak nail frequently met with in phthisis and other intra-thoracic diseases obstructing the respiration.

Heberden's nodes, arthritis deformans (rheumatoid arthritis), gouty deposits, and chronic rheumatism may be recognized in the fingers.

The *nails* do not afford any information of value. In gouty people they may be brittle and friable. A transverse groove may mean nothing more than past pressure over the quick of the nail, such as is caused by chilblains. I have seen such a condition and cause in more than one instance. A similar groove is sometimes seen as an after-effect of an acute illness.

Lower Extremities.—Any deformity must be noted.

Varicose veins or *varicocele* should be reported on if present.

Œdema about the ankles or shin bones is important, especially in stout proposers.

Age.—Most insurance policies are taken out between the ages of 25 and 35, a decennium which is the best of all for making insurance examinations in, as the development of the body has finished, and we have the best opportunity of forming an estimate of the value of the constitution before us. Below 25, and especially below 21, there is a liability to the onset of dangerous illnesses such as rheumatic fever, pleurisy and tuberculosis, and after 35 there is an increasing tendency to risks from degenerative diseases and from gout and cancer. A man never outgrows his heredity, but the value of the family history in estimating prospects of life is perhaps greater in young people below 25 than in adults over 35.

Apparent Age.—How does proposer's appearance compare with his stated age ?

This question is asked not altogether with the object of checking the stated age—many offices require documentary evidence on this point—but also with the desire to know how the proposer has borne his years of life. A man of 40 who has lived

a life of hard mental or physical work with business cares and anxiety will in most cases look older than another man of easier circumstances and less worry. And whilst there is a good deal of truth in the aphorism that "it is not work but worry which kills" there are many exceptions to it, as any one who practises among the working classes knows. A man's prospects of life are not to be gauged by his age in years but by the actual age of his tissues, especially of his arteries.

What are the points in the appearance of a man which give some indication of his age and general health ?

Face.—It is difficult to describe what is a "healthy appearance." One way of doing it would be to enumerate the changes in the face which accompany many diseases and by a process of exclusion to say that a healthy man is one who has none of these facial characteristics. But there are certain recognizable appearances in a healthy man "of about his stated age."

A *fresh complexion* due to local arterial dilatation, clear skin, bright eye, no fulness under the lower eyelids, a look of vigour and freshness, and a cheerful manner generally accompany a constitution which is not only healthy, but not prematurely old.

A *tired look* in the face and eyes, a dull skin, greyish, drawn appearance, possibly with iron-grey

hair, are frequently seen in men who have worked and worried otherwise healthy constitutions into premature old age. In these cases the walls of the blood vessels, as judged by the condition of the radial artery, will be found to be harder than they ought to be.

The *pale face*, with dark rings under the eyes, often indicates a generally low condition of the system, but need not be associated with disease. The appearance will improve after a rest and change of air, and such lives need not be bad ones. A pale complexion is often hereditary in some long-lived families. It is also often indicative of some chronic dyspeptic condition. It also occurs in aortic incompetence, and in subjects of bleeding piles.

It must be remembered that a *good colour*, i.e. vasomotor dilatation, *may be associated with* more or less *serious ailments*, as diabetes mellitus, physiological albuminuria and occasionally phthisis; it is frequently the result of nervousness, brought on by the examination. I have found serious aortic regurgitation in an applicant for insurance with a florid complexion—the picture of health as the insurance agent said when I told him the case was uninsurable.

Exposure to Air.—In the fresh complexion arising from exposure to air as in farmers, cattle dealers,

cab drivers and the like, the colour is due to permanently dilated venules of stellate appearance.

Lesions of the *mitral valve* also are often accompanied by a circumscribed high colour, due to venous engorgement, and the striking and somewhat similar appearance of myxœdema must be remembered.

Good Living.—Another type which is met with is the full-faced, full-blooded, fresh-complexioned, comfortable looking man who evidently lives well, taking plenty of good food and wine with it. Here the colour is due to dilated and congested venules, and is different from the arterial vaso-motor bloom of health, or the flush of nervousness.

Tuberculosis at an early stage may be indicated by a delicate, fine, soft skin, with the veins blue and prominent. The eyes are bright and clear, often with dark rings under the lower eyelid. The complexion may be fresh, and in later stages there is evidence of emaciation with pallor.

Alcohol when habitually taken in excess induces a characteristic bloated aspect. The full, flabby, pale face, puffiness under the eyelids, glassy, watery eye, dull, nervous expression, thick speech, and the odour of metabolized alcohols in the breath are known to every medical man. This class of man generally drinks more than he eats.

Acne rosacea, though frequently associated with

excessive alcoholic habits, may be due to digestive disorders in total abstainers and at the time of the menopause.

When a proposer comes for examination *smelling of drink* he is probably an undesirable life. Fortunately such cases are not common, but the fact, when present, should be noted and most careful inquiries into habits cautiously made.

A *muddy dull complexion* with acne or comedones is frequently a sign of chronic constipation, or indigestion.

The *anæmia* of chronic lead poisoning and of chronic malaria and early phthisis must be remembered, and, when marked enough to suggest a cachexia, malignant disease should be thought of.

The characteristic anæmic tint of *chlorosis* may be met with in women.

Polycythæmia Rubra.—A very high colour is occasionally met with in apparently otherwise healthy people, whose blood contains a large excess of red corpuscles.

Cyanosis will rarely, if ever, be seen, for any person thus affected would probably have been under medical advice and would not be likely to apply for insurance.

Jaundice, if present, will probably be only very slight; otherwise the proposer would not have come for examination. If present, its cause must be carefully sought for.

Any *pigmentation* changes must be noted.

Scars on the face from injury, especially if more than one be present, should awaken suspicions of epilepsy.

Postnasal adenoids may be present, and be suggested by the characteristic appearance which they give to the eyelids and mouth.

Nose.—The shape of the nose gives us but little information. A depressed bridge is sometimes a sign of destructive ulceration from specific causes.

Hair.—The *colour of the hair* is an uncertain guide to age or health. Hard work, worry, and unhealthy habits of life certainly will turn the hair grey quicker than will a life of ease, healthy habits and freedom from anxiety, so that greyness of the hair in comparatively young people should be noted. But in many long-lived families the hair turns more or less grey in the twenties, and proposers will generally volunteer information on this point if any remark about their hair be made. Such a point should be noted in the report.

Baldness is no indication of age, for this, more than premature greyness, runs in many healthy families.

Eyes.—The appearance of the eyes may yield very important signs of past or present disease. Undue prominence with a rim of sclerotic visible around the cornea would suggest exophthalmic

goitre, a condition which not uncommonly exists without its being suspected. Sometimes such ocular prominence is congenital, but, as a rule, there is no rim of sclerotic visible above and below the cornea in such cases.

Inequalities of the palpebral fissures, unless congenital, or due to accident, would suggest post-orbital or intracranial growth, or intrathoracic aneurysm or growth.

The *conjunctivæ* normally are clear and not injected. Injection suggests venous congestion, and is frequently in insurance work associated with too much alcohol.

The *yellow discoloration*, very commonly present both in the inner and outer canthi, but especially in the former, and known as *pinguecula* is of itself of no diagnostic import. It is the result of a chronic form of irritation which leads to thickening of the subconjunctival tissues with yellow coloration. The colour is not due to fat and, what is more important, is not biliary in origin or indicative of jaundice. When jaundice is present it is more generally distributed all over the conjunctivæ and not in the canthi only.

Cornea.—Any opacities must be noted and, if present, the cause, whether injury or syphilis, traced.

Arcus senilis affords no reliable indication of

disease, as it is not uncommonly very marked in young and healthy people.

(2) *Pupils.*—The actual *colour* of the pupils is of no value to the examiner.

Irregularity in shape, other than congenital, and without iritic adhesions, known as the gibbous pupil, may be met with as a very early physical sign in general paralysis of the insane.

Inequality may be due to affections of the sympathetic nerve from pressure of aneurysm or growth, to intracranial conditions or general paralysis of the insane. Slight inequality may occur in perfectly healthy people.

The Argyll-Robertson pupil, that is, reaction to accommodation but not to light, will signify serious nervous disease and its presence would debar from acceptance at any rate of premium. When the movements are present but are sluggish, early nervous disease may be suspected.

Oculo-motor Movements.—Any strabismus, nystagmus or deficient movements of the eyeballs must be looked for, as any one may be indicative of a serious nervous lesion. Nystagmus may be congenital; and also it often occurs in coal miners from the strain to which the muscles of the eyeball are subjected through the miner's cramped position at work.

Iris adhesions due to other than traumatic causes,

are probably syphilitic in origin, and of important prognostic value (*see* Syphilis).

Ears (*see* Nervous System).—The only information of value to be obtained from inspection of the outer ear is the presence of tophi, or gouty deposits in the subcutaneous tissues. Any discharge must, however, be carefully looked for.

The **voice** rarely yields any information for insurance purposes, only occasionally the husky, thick speech due to laryngeal changes of a chronic alcoholic nature will be met with. Any hoarseness must be carefully inquired into. Some observers believe that when a high falsetto voice occurs in an adult there will often be found evidence of impaired health, the respiratory and vocal movements being deficient in these people.

Speech.—Any scanning or syllabic speech would suggest disseminated sclerosis, and slurring of words general paralysis of the insane.

The **gait** of the proposer may suggest to a keen observer early evidence of locomotor ataxia, but a proposal would be but very rarely made by any one with an ataxic condition of the legs.

CHAPTER V

SKIN

Eczema and psoriasis are the most likely skin lesions of importance to be met with in insurance work.

Eczema may be a symptom of a gouty diathesis in older people; and it frequently follows disorders of digestion resulting from the ingestion of certain articles of food in people of peculiar constitution.

Psoriasis may run a very chronic course, varying in the extent to which it affects the skin, but not influencing the general health to any special degree.

Lupus and syphilitic rashes may be met with: and not only the actual rashes but scars of previous eruptions if suggestive of lupus or syphilis should be carefully examined.

Acne vulgaris has no bearing on the value of a life, but *Acne rosacea* must lead to careful inquiry as to habits.

Altered pigmentation of the skin is important as

it may afford evidence of serious general disease, such as syphilis, Addison's disease, or uterine changes.

Birthmarks, vascular nævi, etc., should be noted and their extent recorded.

Itching of the skin is at times intolerable in diabetes mellitus. Hot itching feet, especially in the night, are common in gout; general itching of the skin is also met with in older people and possibly may have a gouty origin.

Boils and carbuncles if they occur often are suggestive of diabetes mellitus.

CHAPTER VI

EXAMINATION OF THE RESPIRATORY ORGANS

Cough.—When it is only occasional a cough need not mean anything serious; when more constant the cause of it must be found out.

A *Pharyngeal* cough may arise from congestion of the fauces and pharynx with excess of mucus, or from granulations at the back of the throat which get dry and cause irritation.

Reflex pharyngeal tickling from irritation of wax in the *outer ear* may cause a constant irritating cough.

A long *uvula* may cause a constant cough.

Habitual laryngeal or *pulmonary cough* signifies some serious lesion, the nature of which will probably be made out in the course of the examination. Young people with habitual dry or moist cough frequently develop phthisis, and a cough in the winter, improving in the summer, to return again with the bad weather, is also often an early indication of the development of consumption.

Epistaxis may result from polypi, chronic congestion or ulceration of the nasal mucous

membrane. It may also occur in disease of the mitral valve, in plethoric subjects, and in those with high arterial tension, and in anæmia and other blood diseases, as hæmophilia. Osler refers to a family form in which many members through several generations are affected. It is merely a symptom, and its effect on insurance proposals depends entirely on the primary disease.

Chest.—With the applicant stripped to the waist, whenever possible, and facing a good light, a careful scrutiny of the superficial appearance and shape of the chest and root of the neck must be made.

In the skin, any rash, pigmentation, or distension of the veins must be noted. Serious distension of the larger veins suggests obstruction to the flow of blood into the chest and may be due to intrathoracic tumour, or to abnormal pulmonary conditions.

Fulness, distension of, or pulsation in the veins of the root of the neck will be best seen at this period of the examination, and generally denotes heart trouble. The band of small distended venules along the line of the diaphragm is supposed by some to be suggestive of emphysema, but most observers attach no value whatever to the condition.

Scars.—Any scars from operations, especially after resection for empyema, should be noted.

The peculiar cicatrices left after cupping operations are not frequently seen now, but when present, especially over the region of the heart, suggest previous illness, probably of rheumatic nature.

Shape of the Chest.—The shape of the normal chest is elliptical with the transverse diameter greater than the antero-posterior in about the ratio of 7 to 5. Any departures from this shape must be noted. The more common ones are :

The *Barrel-shaped* chest of emphysema with anteroposterior diameter approaching the transverse measurement ;

Rickety and Pigeon chest of previous debility ;

The *Depressed sternum* from occupation pressures, bootmakers, etc.; and

The *Flat chest* of phthisis or tendency to phthisis.

Harrison's Groove or a transverse concavity running across the lower ribs at the level of the epigastrium may arise from rickets in early life or from adopting a stooping posture when sitting.

The *relative development* of the two halves of the chest is important. In health the right half of the chest is slightly larger than the left but there is not much visible evidence of this.

Markedly *deficient* development or measurement of one side compared with the other suggests some pulmonary disease—present, as phthisis, or past, as old pleurisy. A deficiency in the size of one half

of the chest is generally most marked *under the clavicles* in the second and third intercostal spaces, and many companies ask definitely for information as to the condition of the chest in these regions.

Increased fulness of one half of the chest may be due to unusual development of the pectoral muscles on one side from greater use as compared with those on the other side.

Unilateral fulness from disease is most unlikely to be met with, for any condition which would give rise to it, as intra-thoracic growth or fluid in the pleural cavity, would cause such serious symptoms as would preclude a proposal for insurance being made.

Spinal Curvature may conveniently be referred to here as its results will be seen most probably in association with some deformity of the chest. If there be any curvature the nature and extent must be noted and evidence of secondary implication of vital organs sought for.

Character of Respiration.—*Rate.* In health there are about four beats of the pulse to one inspiration. Alterations of this ratio are not often met with in insurance work but in the slighter forms of chronic bronchitis and emphysema respiration is more frequent and the respiratory-pulse ratio alters, there being a less number of heart beats to each inspiration. Quickened respiration with pulse

at about the normal rate therefore suggests some difficulty in oxygenating the blood, the primary cause of which will be made out on further examination of the chest. The dyspnœa of cardiac disease is generally associated with quickened and altered heart beats.

Laboured Respiration with some expiratory dyspnœa may be met with in proposers for insurance who suffer from chronic bronchitis, emphysema and asthma. Heart or renal diseases severe enough to cause dyspnœa are not likely to come before the examiner.

Chest Movements.—In investigating the movements of both sides of the chest it is well to look at the chest not only from the front but also tangentially from the sides, and in doubtful cases from behind, in the latter event the proposer sitting down and the observer looking downwards over the apices of the lungs and across the collar bones. In health both halves of the chest participate equally in the respiratory movements.

The Respiratory Capacity of the chest has always been looked upon as a valuable indication of the manner in which the lungs perform their functions. In comparatively recent times this was estimated by measuring, with the spirometer, the number of cubic inches of air which would be taken into the chest in ordinary deep inspirations. At the present

time, measurements are taken round the chest at the line of the nipples at the end of deep inspiration and then of expiration and the movements of the chest, and consequently the capacity for breathing, thus ascertained. In an ordinary healthy man of average weight and build these measurements will differ by about 2 inches. In athletes there will be more movement, even to above 3½ inches; in abnormal conditions there may not be an inch in difference between the full and empty chest measurements.

Diminished movements.—(1) *In Health.* In stout subjects, especially in those with abdominal fulness, the movements are often very slight and the difference in measurements may not exceed one inch.

(2) *In disease* diminished chest movements are met with in phthisis and emphysema. Unilateral restriction of movement may be due to pleural adhesions or to phthisis.

Palpation will afford information of diagnostic value if abnormal conditions be present in the chest, but it is not practised much in examining the chest in ordinary insurance work.

Percussion should be conducted in the ordinary way for pulmonary diagnosis, but remembering that any lesions found will, in the great majority of cases, be but slight and require great care for their recognition. The percussion of identical portions

of both halves of the chest should be carried out consecutively to facilitate the recognition of slight divergences. The *apical* and the *subclavicular regions* are very important. In slight lesions of one apex it is sometimes of advantage to percuss from behind the supraclavicular regions with the chest held in full expansion. Percussion of the apices posteriorly in the ordinary manner must also be carefully carried out.

The resonance of the bases of the lungs should always be investigated.

Auscultation.—Comparison of similar portions of both sides of the chest must be made. In probably healthy people it is enough to examine the apices, infra-clavicular and basal portions of the lung to see that air enters well and in normal manner.

In any abnormality the examiner must be as thorough as he considers necessary to report on the condition to Head Office.

Indications of Early Phthisis.—There is no more important or at the same time more difficult task for the medical referee to carry out than the search for signs of early phthisis, the overlooking of which may mean a very heavy loss for the company. In many, and perhaps the majority, of cases there will be a family history of tubercle to put him on his guard.

Premonitory symptoms.—Progressive loss of flesh

with no illness to account for it ; gastric symptoms, as dyspepsia and vomiting ; night sweats ; winter cough or spitting of blood are all most important early symptoms of phthisis. A quick pulse of 120 or so also is frequently a warning of the presence of pulmonary tuberculosis. In these cases the temperature should be taken in the mouth.

Physical signs.—By inspection may be made out flattening or deficient development under one clavicle and restricted movement of the same half of the chest.

Impaired resonance at one apex. This may be but very slight and only create a suspicion of abnormality.

Slight harshness of breath sounds with some prolongation of expiratory murmur at one apex ; or the sounds may be feeble with the expiratory portion still most marked, the local pulmonary condition being against the easy entrance of air.

Adventitious sounds may or may not be present. They are generally very slight in the earliest stages of apical phthisis and may only be brought out at the end of deep inspiration, or after the applicant has been made to cough. Then a slight click or rhonchus at the end of inspiration will be quite sufficient to confirm suspicions, especially when associated with impaired resonance and exaggerated breath sounds. A few fine râles or crepitations

may be present which will alter in character after deep inspiration.

Absent breath sounds and dulness at one apex are suggestive of healed phthisis. When such a lesion is slight there may be no obvious impairment of movement of the chest on the same side.

Signs of a catarrhal condition without alteration of resonance over one apex only, must excite suspicion of tuberculosis.

A pleuritic rub at one apex is most suspicious of phthisis. The character of the rub may suggest fine crepitations but it will not alter after deep inspiration as the latter will.

The cog-wheel or jerky inspiration is frequently present in early phthisical lesions; but it may be met with in health, especially in nervous people when a very deep inspiration may do away with it. When present by itself it has no pathological signification.

The Sputum can be examined for tubercle bacilli in suspicious cases. When there is a history of a *previous attack of pleurisy* the examiner must be most thorough in his investigation of the condition of the lungs, using every effort to discover disease, as phthisis so frequently follows inflammations of the pleuræ. Adherent pleuræ would be a very serious condition to find in such cases.

Where there has been an **Operation for**

Empyema the examination must also be very thorough, for in such cases a proposal can only be accepted for assurance under the most favourable conditions, including healthy pulmonary organs; and the head medical officer will require definite information on this point.

Hæmoptysis and Hæmatemesis.—A history of *vomiting* or *spitting blood* requires a most careful investigation of the source of bleeding and may conveniently be considered here, as the two terms are often wrongly used, a person stating that he has vomited blood which really came from the lungs and was coughed up in large quantity. The blood may have come from the mouth, nose, pharynx, œsophagus, stomach, or respiratory organs.

The amount brought up must be ascertained, for the term "spitting blood" is applied to anything from an odd streak of blood in one or two masses of sputum to a pint or so of pure blood.

Small amounts of blood very frequently arise from some local condition in the mouth, such as spongy gums round carious teeth, or from violent coughing when ulcerated tonsils or congestive conditions of the nasal and pharyngeal cavities are present. Such blood, which is diluted with mucus and saliva, appears on and off for some days, and often at one time of the day, as for instance in the morning after cleaning the teeth.

More free bleeding from the gums occurs in scurvy, purpura, anæmia or other serious blood diseases.

Ulcerative conditions of the larynx may cause hæmoptysis.

When the blood is brought up in larger amounts the source of it is generally the respiratory passages or the stomach. The diagnosis of the seat of such hæmorrhage is generally easy with careful inquiry, which should be directed especially to ascertaining the *length of time* over which the blood was being brought up. When it is vomited, the blood comes up *once or twice* in more or less large amounts in the course of an hour or so, and after a feeling of nausea, and then ceases, like the vomiting of ordinary contents of the stomach. When it comes from the lungs there is always a history of *constant mouthfuls* coming up over a space of time which may vary from about a quarter of an hour to some days. The characteristics of the vomited or coughed up blood need not be gone into here.

Hæmoptysis.—Assuming that the blood came from the lungs the cause of the bleeding is most important. Was it from a tuberculous or non-tuberculous lesion ?

Non - tuberculous Hæmoptysis. — *Injury :* The gross forms of injury, as stabs and bullet wounds, will rarely concern the medical examiner, but I have examined and passed for insurance one man

who had hæmoptysis after a bullet wound from a burglar's revolver. When examined some years after the injury there was no sign of disease in the lungs. Fractured ribs may be given as a cause of hæmorrhage from the lungs, in hunting men or footballers.

There may, or may not, be confirmatory signs of the original injury in these cases.

After *violent muscular exertion*, as in athletics or games, blood may be brought up from the lungs. It will only occur the once during, or immediately after, the exertion and the man will be all right again in a few days. It is only a rather worse condition than nose bleeding from similar causes. No physical signs will be made out in the chest in such a proposer, even if examined a week or two after the hæmorrhage.

With a slight and trivial *local tracheitis* or *bronchitis* with sticky secretion, a hard cough may rupture a congested venule, when blood will streak one or two masses of sputum. The transient character of the inflammation, and the hardness of the cough necessary to get up the sputum, indicate the triviality of the condition.

Sir Andrew Clark and French writers have described a form of recurring hæmoptysis in *arthritic subjects*, over fifty years of age. It is rarely fatal and leads to no pulmonary changes.

Hæmoptysis may occur in young healthy persons

without any obvious reason, continue for a few days, cause no physical signs, and disappear leaving no ill traces. There may be no further sign of ill-health for years. In Ware's experience of 386 cases of hæmoptysis in private practice 62 recovered and no pulmonary disease developed (Osler).

Hæmoptysis from *aneurysm*, or *malignant growth*, will hardly be met with in insurance work.

Heart Disease.—Spitting of blood is frequently present in cases of mitral stenosis, even in its early stages. An accentuated first sound at the apex and an accentuated second at the pulmonary valve will be heard in these cases, even if no further sign of heart disease be present.

Tuberculous Hæmoptysis.—Spitting of blood is absent in about 20 per cent. of all cases of phthisis. When the tuberculous origin is suspected, a careful examination must be made of the patient's general condition, and especially of the apices of the lungs. Not uncommonly no trace of any disease can be made out in the lungs after undoubted pulmonary hæmoptysis, but signs of early or more advanced phthisis may be present.

The other symptoms of early phthisis must be sought for.

Vicarious hæmoptysis probably does exist, but it certainly should not be regarded as a harmless condition for insurance purposes if given in the medical history of a proposer.

CHAPTER VII

EXAMINATION OF THE CIRCULATORY SYSTEM

Pulse.—The radial pulse may give information which may not be afforded by any other portion of the medical examination : therefore the pulse must be felt very carefully, the medical man using both hands for this purpose. The most accurate information can be obtained if the proposer's right hand be supported by one of the examiner's hands and the condition of the pulse investigated by three fingers of the examiner's other hand.

Tension.—The index finger should be firmly applied well up against the base of the thumb to obliterate any pulse from the palmar arch, whilst the middle finger rests on the artery to note cessation of pulsation, and the third finger applies pressure to obliterate the pulsation.

The tension of the arteries increases somewhat after a meal with consumption of a considerable amount of fluid, but this is transient. Any permanent increase of the tension of the pulse is indicative of disease, or tendency to disease. It may be

hereditary, but probably is always of pathological import, though here the family history is of service in estimating the age the proposer is likely to reach.

High Tension is generally associated with kidney inflammations, acute or chronic, and degeneration of the blood vessels, and in insurance work its recognition is of the greatest value because of its occurrence in the early stages of granular kidney and of the diffuse form of arterio-sclerosis, which are liable to occur in adult proposers. It may be present in big eaters, gouty subjects, in lead poisoning and arterio-sclerosis. Probably some other symptom will be found to explain its cause, and most careful investigation of the urinary organs must be made by inquiring for the occurrence of nocturnal polyuria, and by searching for minute traces of albumen by the most careful use of the heat and acetic acid test.

High tension is also associated with heart lesions, which are generally secondary to the increased tension itself.

Low Tension depends a good deal on the force of the heart beat. The artery is more or less imperceptible between the beats. It may have an important pathological significance in insurance work, but those cases in which it most commonly occurs, namely, febrile diseases, are not likely to come up for examination. It may be present in

people with feeble circulation, in debilitated states of health, or in stout people with weak, fatty hearts, or even in senile arterio-sclerosis with tortuous rigid arteries.

Wall of the Vessel.—The artery should be rolled transversely under the fingers with varying degrees of pressure to investigate the condition of the wall. In a normal artery, if the pulse wave be obliterated under all the fingers, nothing but a narrow, thin, tape-like structure should be felt. With degeneration of the wall, the artery is felt more or less like a cord under the fingers according to the extent of the fibroid changes which have taken place in it, and with atheroma or senile arterio-sclerosis calcification will be felt. Longitudinal movements of the fingers will also help to make out the presence of calcareous nodules.

The tortuous, rigid, pipe-stem vessel of senile arterio-sclerosis is not likely to be met with often in insurance work, as it occurs mostly in people above the age at which insurance is contemplated.

Inequalities of the two Radial Pulses should be sought for, especially in people above 30, for evidence of aneurysm, but in making this point, irregularities of distribution of the arteries of the wrist must be borne in mind. Not uncommonly one or both radial arteries will be found to be abnormally small. In such case inequalities

of pulsation should be looked for in the brachial arteries.

Alterations in the Pulse Rate.—The rate of a normal pulse varies considerably between 60 and 80 beats per minute in the erect posture. Any rate above or below these limits must attract attention, though a further variation of 10 beats either way when the body is at rest may still be compatible with health.

Quick action of the heart in health, apart from nervousness, will be noted if the applicant has been hurrying about before coming for examination, but the heart quietens down after a short rest.

Tachycardia, or rapid action of the heart, is frequently met with and may be due to one of three causes, nervousness, poisons, and organic disease.

The nervous or insurance heart is well known, and occurs fairly frequently. The pulse rate may be above 120 when the examination is first commenced and it may quieten down to 90 or 80 during the interview, or it may continue to be rapid and necessitate another visit in a day or so, when the novelty of a visit to a doctor has passed off, and the pulse rate is much better. A nervous quick pulse would be slowed in some cases on exertion, as by going up a couple of flights of stairs, but not in all.

Poisons.—Tea, coffee and tobacco, when taken

in excess, which may be attained sooner or later in different individuals, according to personal idiosyncrasy, cause a quick action of the heart. The rhythm of the beat is also altered, and irregularity is present. The proposer is probably unaware that anything is amiss. The report on such a proposal should not be completed until observations have been made over a few weeks with abstention from the poison.

Disease.—The variations of rate and rhythm which result from disease are dealt with in the section on the Heart (q.v.).

Bradycardia, or abnormally slow pulse, with apparently a normal heart, is rarely met with in insurance work. I have never found a pulse below 60, but cases have been recorded in which as low as 30 beats per minute persisted through a long lifetime. Occasionally a slow pulse develops and remains permanent after an acute illness. Where there is a pulse-rate below 50, careful inquiry must be made for history of fits, giddiness, or faintings, such conditions occurring with a very slow pulse and constituting Stokes-Adams' disease.

A pulse below 60 may also be associated with cardiac hypertrophy which has resulted from some primary cause, and may also occur in the "senile" heart, that is, a heart with some form of degeneration, fatty or fibroid, which comes on in old age.

Alteration in Rate of Beat from Change of Position.—Where there is evidence of cardiac muscle failure, the change from the lying down to the sitting up or standing position will probably cause considerable quickening of the heart's action, but it must be borne in mind that a similar result may occur in nervous rapid heart action.

Examination of the Heart.—*Inspection :* What must be looked for in inspecting the precordium are,

1. Abnormalities in shape.
2. Position of the cardiac impulse.
3. Nature of the cardiac impulse.

Abnormalities in shape of the precordia are not at all common in proposers for insurance. Those likely to be met with have been referred to in the examination of the respiratory organs.

The Position and Nature of the Cardiac Impulse.—The position of the apex beat of the heart should be determined, if possible, both by inspection and palpation ; but in a good many cases it can neither be seen nor felt, and then the outer limit of the heart should be determined by percussion. The difficulty in making out the apex beat in many cases by palpation or inspection is due to the thickness of the parietes, or to the impulse being behind a rib and not in an intercostal

space, to feebleness of the heart's action or to emphysema. In a certain number of cases palpation with the trunk leaning forward but not to the left may bring out the position of the impulse. When it cannot be felt with the palm of the hand the position of the apex beat may be made out in some instances by applying one finger into the interspace, or the chest piece of a wooden stethoscope may be applied in the same way, when any impulses communicated to it will be magnified by the other end.

The normal impulse is in the fifth interspace ¾ in. internal to the nipple, or 2 in. to the left of the left margin of the sternum. The latter locating method is the safest because in some people the nipples are unusually near the middle line of the body. The nipple line is, for obvious reasons, useless as a guide in women.

In children the apex beat is nearer the vertical nipple line than it is in adults.

Extent of Beat.—The beat extends about an inch and a half along the intercostal space. In thin people it is more diffuse. It is also more marked in nervous people, and in men than in women.

Displacement of the Apex Beat may be due to many causes, some of which will be met with unexpectedly in insurance work. The chief of these conditions may be grouped thus :—

1. Congenital dextro-cardia.
2. Intrinsic or cardiac causes :—
   - *a.* Displacement directly outwards is due to dilatation of the left ventricle ;
   - *b.* downwards to pure hypertrophy of the left ventricle ;
   - *c.* downwards and outwards, to dilatation with hypertrophy of the left ventricle ;
   - *d.* the apex beat extending over the fourth and fifth spaces to the left edge of the sternum means dilatation of the right ventricle.
   - *e.* Pulsation in the epigastrium under the left costal arch is met with in enlargements of the right ventricle in which hypertrophy is a marked feature.
3. Extrinsic or extra-cardiac causes :—
   - *a.* Thoracic :
     - (*α*) Pushed out of position.
       1. Pericardial effusion, fluid in pleural cavity, tumours of the lung, pneumothorax.
       2. Intrathoracic aneurysm.
     - (*β*) Pulled out of position, fibrosis of lung, pleuropericardial adhesions.
   - *b.* Abdominal :

     Tympanites, tumours, ascites ; also flatulent distension of the stomach.

Many of the above conditions which lead to

displacements of the apex beat are not likely to be met with in insurance work, but it is extraordinary to what extent disease may progress without its presence being suspected. I have seen a huge heart in a supposed healthy man.

Palpation of the Cardiac Impulse.—Normally the apex beat has distinct features to the touch, the characteristics of which will have been acquired by experience in ordinary medical practice. It suggests a certain amount of force and suddenness of impact, and is limited in extent to an area of about that of half a crown.

Variations in Character.—A heaving, slow impulse, limited in extent, is characteristic of hypertrophy, generally of the left ventricle.

In dilatation of the left ventricle the beat is displaced directly outwards and is feebler, more flapping and quicker.

Usually these two conditions are combined when the apex beat is displaced downwards and outwards.

When the impulse extends to the sternum it means dilatation of the right ventricle.

In hypertrophy of the right ventricle there is a cardiac impulse of heaving character to the upper and left part of the epigastrium under the costal arch.

A very characteristic, sharp, abrupt, tapping,

limited beat, normal in position, is met with in mitral stenosis, and a thrill may, or may not, precede it.

A feeble slapping impulse may mean a feeble heart, especially if the parietes be thin and the impulse be in an intercostal space.

Whilst a heaving and slow beat over a limited area, but displaced directly downwards, is met with in hypertrophy of the left ventricle, it must be remembered that in one form of nervous insurance heart the beats are slow, very forcible, and suggestive of hypertrophy. A second examination in a few minutes will probably find a normal impulse.

Percussion.—Enlargement of the Heart may be the result of disease or, less often, of muscular exertion in athletes.

Pathological enlargements arise from some morbid condition either within the heart or in other organs; in the latter case the increase in size is due to increased blood pressure and increased work of the heart. The enlargement may be caused by dilatation of the cavities with or without increase in the muscle of the heart, or by pure hypertrophy of the cardiac muscle. In both conditions there will be other physical signs or symptoms indicative of the primary disease—valvular affections, muscle failure, renal disease, pulmonary disease or arterio-sclerosis. When the hypertrophy of the muscle fully compensates

for the enlargement of the chambers, and the circulation is carried on properly, the value for insurance purposes is but slight, but if there is want of compensation the cases are of no value at all.

Physiological Enlargement.—Is there such a condition ? Cases in which the apex beat of the heart is displaced outwards to the vertical nipple line or beyond, and in which there is no other sign of disease whatever, must be examined very carefully, to see whether there are any simple abnormalities in the shape of the chest to cause the unusual position of the apex beat. In adults, or youths above puberty, the apex beat ought to be within the nipple line and in the fifth interspace. In children it is often rather farther out, the shape of the chest being the abnormality.

Occasionally in young, and apparently quite healthy applicants the examiner is surprised to find the heart larger than it ought to be, the outer limit to percussion and the apex beat to palpation being in the vertical nipple line. These men may give a history of having gone in for athletics strongly, and they may be playing games requiring vigorous exertion at the time of examination. But such cardiac enlargement is the exception in men who play games or run. I have examined some half dozen athletes and, except in

one instance, found nothing abnormal with the heart, but noticed the pulse rate to be about 60. One man of 24, who had as a schoolboy been a runner and still played lacrosse, had a heart extending to the nipple line, and undoubtedly enlarged.

I believe that these physiological enlargements, if not very great and in otherwise unexceptionable young lives, are eligible for assurance at ordinary rates, especially for endowment policies.

Auscultation:—Rhythm.—Then normal heart-beats follow regularly, one after another, without any consciousness of their occurrence to ordinary individuals.

Intermittent Action.—In healthy people, however, sometimes the sensation of the heart giving an extra big beat, or "tumbling over," is occasionally experienced, and if the ear of an observer be applied to the chest during such an occurrence the heart is noticed to "drop a beat," and then follow with a louder more forcible beat. Such a condition is very commonly the result of indigestion, and due to reflex causes produced by gas in the stomach, and means nothing. In other people the heart may drop a beat with greater frequency and regularity and yet not be apparent to them. Sometimes the intermission is as often as one in four, but more frequently one in ten or twenty

or more. These cases should not be passed at the first examination, for sometimes they may be due to excess of tobacco or tea, and will come quite to normal rhythm with discontinuance of smoking or of tea drinking. Very rarely is anything else abnormal to be made out in the applicant, and it is difficult to say why the beats should be dropped. There must be some fault of conduction of stimuli through the auriculo-ventricular nerve bundle of His, but whether it is pathological enough to shorten life is hard to say. It is not uncommon to meet with men, many of whom are gouty, who have had a dropped beat in every five or ten for years and been apparently none the worse for the irregularity.

All insurance offices would rather not have such a heart to deal with, but most will accept at ordinary rates slight degrees of intermission.

Cardiac Irregularity.—A very bad form of irregularity is the occurrence of several rapid after two or three slow beats, and is only met with in serious cases of heart disease, generally with dilatation from mitral valve affection, in myocardial changes due to chronic alcoholism or to the senile heart.

These cases are uninsurable.

Cardiac Sounds.—*Alteration in Rhythm.*—In health there is always a longer interval between

the second and first sounds than between the first and second sounds, and this relative duration of the two intervals is maintained even with a quick nervous action of the heart.

When the rhythm of the sounds is so altered that the first follows as quickly on the second as the second does on the first, and the "*tic-tac*" or *embryocardial rhythm* is present, there is certain to be some serious myocardial change in the heart of grave prognostic import. This peculiar rhythm, with the quick action of the heart which is associated with it, is recognizable at once by the trained ear, and other signs of disease must be carefully sought for. There may, or may not be, arterial changes and small quantities of albumen in the urine as well, but the abnormal rhythm and quickened action of the heart alone are sufficient to cause delay, at any rate for further observation before reporting on a case.

Diminution in intensity of the heart sounds, if noticeable, must attract attention, but it is not common to have to report it. When present, weak sounds probably mean weak circulation, and will be more likely to be met with in senile and obese conditions than in any others. There is, however, a distinct condition of weak heart which with healthy and quiet life may cause no trouble, but which may end in syncope after over-

exertion. In pure hypertrophy of the ventricles the first sound may be dull, muffled and sometimes almost indistinguishable at the apex. An impure or murmurish first sound or even second sound requires much caution in dealing with. Either may mean the onset of a serious lesion. Such cases should be deferred for observation.

Undue thickness of the parietes in front of the heart will make the sounds less audible than in normal conditions, but the character of them will not be altered.

Accentuation of the heart sounds is much more common. In healthy people loud and sharp sounds may be heard when the proposer is nervous and has forcible action of the heart whilst under examination. This will pass off in a few minutes, and probably the sounds will be normal if a second examination be made. If the stomach contain much gas the sounds of the heart frequently have a characteristic tympanitic ring about them. Percussion over the stomach just below the apex beat will bring out a tympanitic stomach note in these cases.

Apart from nervous subjects the second sound may be rather shorter and sharper than is natural, and yet nothing else abnormal may be found in the proposer. Such a condition probably means nothing in an otherwise healthy subject of adult life.

Temporary accentuation of the pulmonary second sound can be brought on by holding the breath for a few seconds.

Pathological accentuations of the heart sounds are met with when there is increase of blood pressure in the systemic or pulmonary circulations.

Accentuation of the *first sound* of the heart is met with chiefly with the high tension which results from Bright's disease and arterio-sclerosis, but when there is distinct hypertrophy of the left ventricle the sound may be muffled. The radial pulse in these cases will be of increased tension, and there will be more or less degeneration of the vessel wall along with albumen in the urine. The examination of the urine must be conducted with great care, for the presence of the slightest trace of albumen with a history of polyuria, especially nocturnal, is of the utmost importance (*see* Urine).

An accentuated first sound heard at the apex beat may also be indicative of mitral disease. Such a sound is specially loud and sharp, and is quite characteristic of this lesion. Very frequently this accentuated sound will be immediately preceded by a crescendo, or so-called presystolic murmur, which though it may be but a whiff of sound, is to the trained ear easily recognizable. There will generally be in these cases an accentuation of the second sound at the pulmonary area.

A sharp, slapping, first sound is frequently met with in dilated and hypertrophied hearts.

Accentuation of the *second sound* at the *aortic orifice* is met with when there is increased blood tension in the aorta, or with some atheromatous thickening and stiffening of the cusps of the valve in older subjects.

An accentuated and ringing second sound at the aortic area may be one of the earliest signs suggestive of aneurysm of the arch of the aorta.

At the *Pulmonary Orifice* an accentuated *second sound* is heard in many cardiac lesions. It may be the sole abnormal stethoscopic indication of mitral stenosis and, when heard, must make the examiner suspicious of this lesion. As a rule, however, in these cases it will be accompanied at least by an accentuation of the mitral first sound. Accentuation will also be heard in chronic lung disease with laboured pulmonary circulation.

When the second sound at the pulmonary valve is accentuated there will generally be some enlargement of the right ventricle, which will give rise to cardiac pulsation felt in the epigastrium, and a diffuse impulse in the fourth and fifth intercostal spaces between the sternum and the apex of the heart. Very often also with this high pressure in the pulmonary circulation there will be heard a systolic murmur at the tricuspid orifice of safety-valve nature.

Doubling of the Sounds of the Heart.—In health, it is not uncommon to hear an occasional reduplication of the first or second sounds of the heart, but when the condition is marked, or persists, there is probably some increased pressure present in one or other of the circulations which must be carefully investigated.

Previous History in Cases of Cardiac Disease.—In investigating the condition of the circulatory apparatus it is most important to find out whether the applicant has ever had any illness in previous years of a rheumatic nature, for a knowledge of the primary cause of any heart lesion, especially of a valvular lesion, is of much help in forming an opinion of the probable duration of life.

In seeking for a history of antecedent rheumatism it is not enough to ask whether the patient has had rheumatism, rheumatic fever, chorea, or scarlet fever. The reply to these questions is very often decidedly in the negative, but a question about growing pains must also be asked, and very often the patient will say at once, "Oh, yes, I had growing pains when I was at school." I have pointed out previously that these so-called growing pains are almost invariably of rheumatic nature, for they must have been severe to be remembered so long—in two cases recently under my observation over thirty years. It is probable that all mitral lesions

in early adult life are due to a rheumatic affection, in spite of a completely negative history. The younger the subject of acute rheumatism, the less is the tendency for the joints to be involved, and the greater tendency towards endocarditis. In cases of mitral stenosis with such a history of growing pains or without any rheumatic history at all, it is probable that the endocarditis was of a low insidious type which set up a slow sclerosing process, and not an acute change active enough to cause cardiac distress and dyspnœa from severe endocarditis, or certainly not from muscle failure.

It has long been recognized that myocardial affections of rheumatic origin are very fatal in childhood, and those who have such a condition rarely grow up to adult life. The practical bearing of this is, that if we hear a murmur of mitral regurgitation in an adult who gives a previous history of a rheumatic affection, or of growing pains, we can conclude with safety that the lesion is more or less obstructive.

Influenza as a cause of heart lesions must be remembered. It may result in muscle changes causing dilatation or irregularities in rhythm and rate, or even in valve curtain disease.

Gonorrhœa may be the primary cause of malignant endocarditis, but it is not a common cause.

Pain.—Any history of pain in the chest or over

the heart must be carefully inquired into. The simple pain over the heart of anæmia may mean nothing serious, but where there is a history of severe pain behind the sternum, and shooting pains up the neck or down one or both arms, the so-called *anginal pains*, there is probably some serious lesion of the aorta, or coronary arteries. Such pains may also be the first symptoms of aneurysm of the aorta, and physical signs of such a condition must be very carefully sought for. The pains may arise from some lesion associated with incompetency of the aortic valve, when a diastolic murmur produced at this orifice will be probably heard; and they may occur in mitral stenosis. If they be due to true angina pectoris with sclerosed or atheromatous coronary arteries, there may be no physical signs to be made out.

Pseudo-anginal pains in the chest, but not radiating from it, occur in functional stomach troubles, but the greatest care must be taken in coming to such a diagnosis.

Diagnosis of Valvular Lesions of the Heart.—This is not the place to go into the differential diagnosis of cardiac valvular lesions, but of course it is most important to ascertain which of the valves is affected or whether there is obstruction, or regurgitation, or both present.

The Condition of the Cardiac Muscle especi-

ally must be investigated, because on it and on the primary cause of the heart lesion will the prognosis depend. In listening for heart murmurs it is absolutely essential that the outer limit of the heart to the left be ascertained, for a murmur, especially the crescendo murmur of mitral stenosis, may be heard only over the limited area of the apex beat.

Nature of the Murmurs.—The loudness of a murmur and the extent of its conduction are not infallible guides to the severity of the lesion. Very loud musical murmurs are frequently present when the regurgitation or obstruction which causes them is slight in extent. Thus I heard recently, without any stethoscope, a loud murmur of mitral regurgitation two inches from the chest in a working man who did not know that anything was the matter with his heart, his trouble being mild indigestion. This murmur must have arisen from an attack of rheumatism forty years previously.

Mitral Valve.—The conduction of a murmur of *mitral regurgitation* into the axilla, or to the back, is no absolute guide to the severity of the incompetency. Murmurs which are conducted well are, in my opinion, due to vibration of part or all of a valve, and not to a *veine fluide* such as one gets in muscle-failure regurgitation, and a very slight tag may be the cause of a widely conducted murmur.

But generally speaking regurgitation through distorted valve-curtains causes wider conduction than when the curtains are normal and the orifice is dilated.

The diastolic murmur of *mitral stenosis* gives us more definite information inasmuch as its presence means obstruction to the flow of blood through the valve—a serious condition because of the effect which the obstruction has on the pulmonary circulation. Such a murmur is often accompanied by a diastolic thrill.

A true crescendo murmur of mitral stenosis, that is the characteristic sound of ascending pitch, increasing force and sudden cessation with the abrupt first sound, is a good sign, for being, in my opinion, early systolic in rhythm it means that the stenosed valve is competently closed at a very early phase of ventricular systole, and very little blood regurgitates to add to the obstruction in the pulmonic circulation. Where an ordinary prolonged systolic murmur is heard in mitral stenosis it means that blood is passing back all the time of ventricular systole into the left auricle and helping to increase the blood-block there.

Tricuspid Valve.—Incompetency of this valve with a systolic murmur of regurgitation will probably only be met with in insurance work as secondary to mitral disease or pulmonary disease.

Obstructive lesions of the valve are very rare, but what has been said about similar mitral lesions holds good for them, with the area of audibility at the tricuspid region instead of at the apex of the heart.

In **Aortic Valvular Lesions** also the loudness of a murmur or the extent of conduction is no infallible guide to the severity of the disease of the valve. But where a loud *aortic systolic* murmur is accompanied by a thrill over the chest at the base of the heart, there is certainly relative or absolute stenosis of the valve orifice present. The amount of hypertrophy and dilatation of the left ventricle is a better guide to the severity of the obstructive lesion. In examining the carotid and subclavian arteries for conducted aortic systolic murmurs care must be taken not to produce a vascular murmur from pressure with the stethoscope.

Aortic Incompetence.—In suspected *aortic regurgitation* the *whole of the precordium* must be carefully examined for the diastolic murmur, for it is frequently very faint and whiffy, and heard only at a small area, even no bigger than that of a shilling, at *any portion* of the chest over the heart. The most common area of audibility of aortic regurgitant murmurs is, however, down the left edge of the sternum or about the tricuspid region. When the second sound is still audible, and is fol-

lowed by the diastolic murmur, the incompetency is not as great as when it is absent. The condition of the left ventricle gives also reliable information as to the extent of the regurgitation; the greater the dilatation and hypertrophy the more serious the back flow.

Aneurysm, or **Aneurysmal Dilatation** of the arch of the aorta, must not be overlooked as being the cause of murmurs at the aortic orifice. If the former condition be present other physical signs will be made out, one of which, a peculiar ringing of the second sound, must be borne in mind. In dilatation of the arch of the aorta marked supra-sternal pulsation will be easily felt. The other signs of aneurysm, visible and expansile pulsation of the chest wall, tracheal tugging, inequality of pupils, laryngeal paralysis, diastolic shock, pressure on the œsophagus and air passages, inequality of the radial arteries, etc., must be looked for.

Pulmonary Valve lesions are very unlikely to be met with in insurance work unless it be the systolic murmur of anæmia.

It is not likely that any subject of congenital pulmonary stenosis, who might attain to adolescence or beyond this age, would propose for insurance with the cyanotic appearance which characterizes this lesion.

Cardiac Hypertrophy.—*Left ventricle.* The most important signs are the displacement downwards of the apex beat, forcible impulse, muffling of the first sound, accentuation of the aortic second sound, and absence of cardiac bruits. In less extensive thickening of the ventricle wall the first sound may be more accentuated. When the hypertrophied muscle is failing, doubling of the first sound is frequently heard.

In hypertrophy of the *right ventricle* there is cardiac pulsation in the epigastrium and the second sound at the pulmonary area is accentuated. Dilatation with a regurgitant murmur is generally present as well in right ventricular enlargement.

Cardiac Dilatation.—The previous history is an important aid to the recognition of pure dilatation of the heart. Its most common causes are valvular lesions, muscular exertion in young healthy subjects, unusual exertion in older men, alcoholic excess and muscle failure following high tension.

In dilatation of the *left ventricle* the apex beat is displaced outwards. The impulse is more diffuse and slapping, the first sound is sharp and flapping, and there are generally regurgitant bruits. Signs of back pressure in the pulmonary circulation, as indicated by an accentuated second sound at the pulmonary area, will be present, and in more severe cases the right side of the heart will be involved

with its consequences producing the usual back pressure in the pulmonary and systemic circulations.

In dilatation of the *right ventricle*, the true apex beat of the left ventricle is pushed away from the chest, and is not palpable, but is replaced by a visible diffuse pulsation which extends widely over the fourth and fifth intercostal spaces towards the sternum. This impulse is slapping in character. The first sound is abrupt and flapping, the pulmonic second sound is accentuated, and there is almost invariably a murmur of regurgitation through the tricuspid orifice with systemic venous obstruction.

It is very unusual to find pure hypertrophy of a ventricle, dilatation generally occurring with it.

Auricular Lesions do not call for consideration here as they are secondary to more important valvular or ventricular lesions.

Posture Murmur.—A possible source of error in the examination of the heart is a murmur of systolic rhythm heard most loudly over the base of the heart, but also sometimes all over the precordium. I have heard such a murmur on several occasions both in insurance work and in private practice, but do not know any record of its having been heard by others. The murmur is heard when the person being examined holds his vest well up, with shoulders drawn back, or in a woman when one side of the corset is held back, and the shoulder

drawn well back also. It is quite independent of respiratory movements. I first heard it in a woman patient with dyspepsia and thought she had serious disease of the aortic orifice; on a second examination, before pronouncing my opinion, I was astonished to find absolutely no trace of murmur. I then went carefully into the matter, putting her into similar position in which I first heard the sound, and it was there. The sound is produced, I believe, from pressure on the subclavian artery by the clavicle, which with the shoulders well drawn back, in some, but not all, healthy people presses on the vessel. It is a most deceptive murmur, but of no pathological import.

In some very muscular subjects a similar murmur may be heard and is probably due to pressure on large arteries by the enlarged muscles.

Cardio-respiratory Murmurs are not uncommonly heard in quite healthy conditions. A soft, systolic swishing sound noticed generally with inspiration, or only at certain stages of inspiration, and disappearing immediately the breath is stopped in any position of chest expansion, is the usual type of such murmurs.

Effect of Position on Cardiac Murmurs.—In the examination of a heart for insurance purposes it is quite sufficient to make it with the applicant in one position—standing up. If the result be satisfactory

and there is nothing to suggest heart trouble nothing further need be done. But if you have reason to suspect a valvular lesion, then the heart should also be examined in the lying-down position, for occasionally a murmur of slight incompetence may be heard then, and not in the erect posture. In health no cardiac murmur will be heard in either position, though the loudness of the sounds will vary according to the change of blood pressure from the erect to the lying down position.

Hæmic Murmurs may be met with in anæmic subjects. They are best audible in the pulmonary area, that is the second intercostal space on the left side. When the area of audibility is limited to this intercostal space the lesion causing the murmur is relative stenosis of the pulmonary orifice due to dilatation of the artery just beyond it. They may also be heard at the apex of the heart, but if distinctly audible in this region there will be some cardiac dilatation present, evidence of which will be afforded not only by percussion but by quickened action of the heart and by a history of dyspnœa. A venous hum will generally be heard also over the veins of the neck. The anæmic appearance of the subject will be confirmatory evidence of the true cause of this type of murmur.

Adhesions of the Pericardium, if present and recognizable, must mean a severe cardiac

lesion with marked involvement of the myocardium and fixation of the parietal pericardium to the anterior chest wall. There is, however, nothing more difficult in medicine than the recognition of slight adhesions between the visceral and parietal layers of the pericardium, in fact there is no sign which is diagnostic of this simple uncomplicated condition. Where the condition causes systolic retraction of the intercostal spaces there is enlargement of the heart present as well, generally both dilatation and hypertrophy.

CHAPTER VIII

EXAMINATION OF THE ALIMENTARY SYSTEM AND ABDOMEN

As a rule in insurance work very little will be acknowledged or found to be wrong with the digestive system. The most that will be made out will be a history of dyspepsia, which, as a rule, means nothing of importance from a prospect-of-life point of view. But it must be borne in mind that more persistent indigestion may be a forerunner of phthisis in younger subjects and of cancer in older people, or be an indication of alcoholic excess in middle age, and any confirmatory signs of any of these serious conditions must be carefully sought for.

The **teeth** are not of much value for insurance information, but a good set of the proposer's own teeth in adult life—a condition not commonly met with nowadays—is a sign of good vitality. I once examined a man of sixty who had an almost perfect set of his own teeth. Most insurance proposers have more or less false teeth, and it may be said, "Better a good set of false teeth than a

bad set of natural ones." The characteristic teeth of congenital syphilis are scarcely ever seen in insurance examinations.

Gums.—The condition of the gums may give some indications of value—a blue line from lead poisoning, or the swollen spongy gums met with in carious teeth or low conditions of health. There is also sometimes a dark reddish line in consumption.

The Breath may give evidence of ozena, of decaying or dirty teeth, of enlarged tonsils, or it may have the strong character which is met with in people whose alimentary system is out of order. The smell of metabolized alcohol must excite suspicion as to habits. The sweet breath of a diabetic is hardly likely to be met with, but still must be borne in mind.

The **Tongue** may give information of great importance in life assurance work, especially in elderly proposers. The cleanliness of it varies much in health, a greyish fur at the back being commonly met with in people who ail nothing.

In the raw, excoriated, *dyspeptic tongue* the surface is smooth in patches and has no papillæ over the abnormal areas which are red and apparently raw. The back portion of the tongue is furred.

Furrows or *grooves* and *wrinkles* are not necessarily evidence of disease, but sometimes occur in syphilis.

Fissures and *cracks* are often signs of syphilis, or

cancer. The presence of many fissures, etc., on a tongue with no surrounding inflammation and with no irritating teeth, is very suggestive of syphilis.

Leukoplakia, or white patches of thickened epithelium, is due to a variety of causes and is painless as a rule.

1. *Smoker's patch* occurs on that part of the tip of the tongue against which a tobacco pipe presses, or the smoke from it would impinge. It is quite limited in extent.

2. When the patch is more extensive the condition is known as *leucoma*. This may be caused by smoking, irritating foods or drinks, or irritation from ragged teeth, or tooth plates. Syphilis, gout and rheumatism also will cause the cornification.

3. *Ichthyosis* is a warty condition of the tongue arising from similar causes as leucoma.

4. *In chronic superficial glossitis*, or smooth tongue, no papillæ are seen, and there is no fur, but the tongue is redder than usual. Excoriations or bluish patches may appear, and the tongue is large, sensitive or painful when moved or on taking food. It is often of gouty origin and may last for months and years and then improve.

Black tongue, occasionally met with, has no pathological significance.

A *dry tongue* is met with in diabetes mellitus and insipidus.

Indentations without any destruction of tissue are met with in chronic dyspeptic conditions, when a pale, flabby, large tongue presses against the teeth.

Tremor of the tongue will suggest alcoholic excess, and fibrillary twitchings, often associated with tremor of the upper lips, general paralysis of the insane.

Fauces and Pharynx.—*Large tonsils* are occasionally seen. When due to simple hypertrophy they have no adverse bearing on the value of the life, though they may mean that the proposer will be liable to acute tonsillitis, or some observers believe to rheumatic infections.

Syphilitic ulcers or scars on the tonsils or perforations of the palate may be seen. Occasionally a perforation of the palate may be congenital or the result of incomplete operation for a cleft palate.

Hyperæmia and considerable *catarrh* of the fauces and pharynx are met with in alcoholic subjects, and redness and congestion in heavy smokers.

Stomach.—Symptoms referable to the stomach are often met with.

Early morning nausea may be complained of by a proposer with alcoholic habits, or may be made out by judicious inquiries.

Want of appetite for breakfast must always be looked upon as a suspicious sign of alcoholic gastritis, but at the same time it must be remembered that

many people take only moderate breakfasts according to the Continental system.

Periodical attacks of *vomiting* may be complained of with the information that the applicant is subject to "biliousness." He probably is, and is none the worse for insurance purposes. But the possibility of the gastric crises of tabes dorsalis must be borne in mind, and in older subjects malignant disease. Migraine headaches and vomiting are met with occasionally and the diagnosis must be confirmed by the medical examiner's own inquiries.

Hæmatemesis of gastric or œsophageal origin is very unlikely to have occurred in the personal history of a proposer. Blood swallowed from the nose, or mouth, may be vomited without the proposer having known its source. The possibility of a gastric ulcer with sequelæ must be borne in mind.

Vomiting of "coffee grounds" must suggest malignant disease.

A history of *dyspepsia*, especially the flatulent form, is important when irregularity of the pulse is present, as it offers a simple explanation of what might otherwise be a troublesome symptom to deal with. The intermittence will pass off with the dyspepsia.

Biliousness, or attacks of indigestion associated with functional disturbance of the stomach and

biliary secretion which are cured by a dose of blue pill, is not only not a bad sign in estimating prospects of life but even good, for the subjects of it generally take care of themselves, and the attacks work off collections of poisonous metabolic products which otherwise might collect further and lead to an attack of gout.

Pain in the stomach region is rarely complained of, but there are proposers for insurance who have had, or are supposed to have had, gastric ulcer. I examined one man who had laparotomy performed for supposed ulcer. Gastralgia or pyrosis may account for pain in apparently healthy people.

The possibility of gastric ulcer or cancer must however be borne in mind, though the former is not common in men. The pain of biliary colic also may be referred to the epigastrium.

Inspection of the Abdomen.—This can be carried out when inspecting the chest. The *girth of the abdomen*, either at the umbilical line or at the maximum measurement, is asked for by some offices as a guide to the obesity or otherwise of the applicant. The measurement should not exceed that of the chest at the nipple line in full inspiration, or as some say after expiration. Anything beyond this suggests undesirable corpulence.

The condition of the *umbilicus* is important in view of the risks of hernia there.

Any *distension of the veins* due to collateral circulation from anastomosis of the superficial abdominal and thoracic veins suggests venous obstruction, most probably of the portal circulation, and would indicate cirrhosis of the liver. The distension of the veins about the umbilicus—the caput medusæ—also suggests liver obstruction. The distended venules seen running in a band across the abdomen about the region of the hypochondria are of no definite pathological import (*see* Chest).

Any abnormalities of contour of the abdomen must be noted. The "pot-belly" is suggestive of *visceroptosis*, when it is highly important to see whether there is any dilatation of the stomach, and if so to determine the cause.

Any *cicatrix* of abdominal operations will call for notice and careful inquiry into the cause and result of the operation. The possible development of ventral hernia must be considered.

White marks denoting previous distensions of the abdominal walls, as from pregnancy or ascites, should be noted. Also any abnormal pigmentation.

Palpation.—In elderly people, especially when thin, the abdomen should be palpated for evidence of malignant disease.

Hernia.—The presence of any form of hernia must be reported on, and the rupture examined

to ascertain its nature and whether a proper truss is worn. The inguinal canals should be examined as a routine procedure in all male proposers. The commonest form of hernia met with in insurance is the *inguinal hernia*, and this is the least dangerous, the ventral, umbilical and femoral varieties being more likely to cause trouble. Any scars on the abdomen from previous operations must be examined for possible development of *ventral hernia*.

Hernia is more likely to be met with in adults than in younger people.

Femoral herniæ, unless known and acknowledged to be present, are very liable to be overlooked as they occur more commonly in women, and it is difficult to make such a thorough examination of a female proposer as would be necessary to discover one.

With a history of a previous rupture, the seat of it should be examined to see if the condition has actually been cured or if there is still a danger of the bowel coming down again. Any truss worn should be examined, for a very large number in use are useless if not harmful.

Piles.—A history of piles may mean nothing, or it may be evidence of hepatic congestion of dangerous degree. Careful inquiry into the cause and extent of the hæmorrhoids must be made.

Fistula and Ischio-rectal Abscess.—With

history of present or past fistula or abscess the possibility of tuberculosis must be borne in mind and the case examined with due care.

Constipation.—Simple constipation in otherwise healthy young adults is of no importance. Constipation in older people needs inquiry as to possible presence of some form of obstruction, and when it alternates with diarrhœa, malignant disease of the rectum must be thought of.

Hæmorrhage from the bowel may occur apart from piles and its cause must be investigated.

Melæna.—If the blood passed were black and tarry the cause of the bleeding must be carefully investigated. It might have been due to some ulcer in the stomach or duodenum, or possibly to a simpler cause such as oozing from some local congestion. I have a case in my mind which was probably of the latter nature. If the blood is brighter in colour the possibility of rectal ulceration or polypus must be considered.

Diarrhœa as a rule is of more importance than constipation as being a possible symptom of intestinal disease. Some people have an evacuation of the bowels two or three times a day, or after each meal, and yet are quite healthy. But when there is a history of diarrhœa, or three or more evacuations, especially in the morning before noon, Graves

disease must be suspected and other indications of this serious condition must be sought for.

A history of *Dysentery* may be met with in people who have lived in tropical climates, and it is important to know that it is quite cured.

Colic.—Attacks of colic recurring at intervals, and severe enough to impress themselves on the proposer's memory, must suggest appendicitis, gall stones, renal calculi or gravel, plumbism or mucus colitis. Griping and some irregularity of the bowels may arise from painful local lesions about the anus —fissure or piles.

Appendicitis.—With a history of recurring attacks of colic in the right inguinal region a careful examination must be made to ascertain whether there is any tender spot or tumour. Pain on micturition is not uncommonly associated with peri-appendicular adhesions.

Gall Stones.—The right hypochondriac and pyloric regions must be examined for any evidence of pain or tumour formation. The duration, number, frequency of the attacks, and the date of the last one must be ascertained. When there is a history of "*windy spasms*" or "*gastric colic*," gall stones must be suspected. If jaundice be present its cause must be ascertained, bearing in mind cancer of the gall bladder, liver or pancreas. A tender gall bladder can sometimes be diagnosed

by palpating with the left hand, the thumb of which is placed under the costal arch about the tenth rib and the fingers being closely applied to the lumbar region. On inspiration anything abnormal will be readily made out.

Renal Colic.—The kidneys must be carefully palpated bimanually to see if there is any tenderness indicative of further calculi in the pelvis. The duration and number of the attacks and date of the last is most important.

Floating Kidney when marked, generally causes dragging or sickening pains. As it occurs frequently in women the possibility of its presence must be borne in mind when abdominal pains are complained of. When it is present inquiry should be made for attacks of Dietl's crises, which are serious complications of nephroptosis.

Liver.—Where alcoholic habits are suspected, the examiner must palpate the abdomen to find whether there is any enlargement or tenderness in the region of the liver, both under the costal arch and between the ribs.

The **Spleen** should be examined where alcoholic excess or any blood disease is suspected and in all people who have lived in hot malarial climates.

CHAPTER IX

EXAMINATION OF THE URINO-GENITAL ORGANS

Urine.—The examination of the urine must never be omitted in insurance work, since indications of disease which would otherwise escape unrecognized may be afforded by its condition.

The specimen should be passed in the presence of the medical examiner or at his rooms. When further examinations are necessary the proposer should call again, but if specimens passed at different hours of the day are required, the urine will have to be brought in a bottle. Substitution of other urine may easily take place unless the specimen be passed in the examiner's room. I heard of one case in which a husband forwarded a specimen of his own urine for his wife's application and it contained albumen ; and it is on record that a man who knew he had Bright's disease provided an albumen-free urine for insurance examination and so defrauded the company.

Occasionally the difficulty arises of a nervous proposer being unable to pass water in an ordinary

room, into a strange glass vessel and in the presence of the referee. Such men should be left alone for a few minutes with an ordinary chamber-vessel, and if this procedure fails they should be taken to a lavatory, where the more usual surroundings of the act of micturition will exert a satisfactory nervous stimulus, and probably they will be able to pass a sample.

In the very rare event of a man being unable to pass water at the rooms he must then bring some in a bottle and a note of the fact should be made.

There is no difficulty in obtaining a specimen of urine at one's rooms from *female proposers* without offending their sensitiveness. My custom is to finish all the examination except that of the urine, leave the applicant in the room, saying that after the attendant has spoken to her she may go. The attendant, a woman of course, then obtains a specimen in an ordinary bedroom utensil and shows the proposer out.

Examination of the Urine.—It is advisable to have a very small urinometer and urine glass to match, as very frequently only a few drachms of urine can be obtained, and most offices require a record of the specific gravity. An ordinary sized urinometer and vessel can be used in the majority of cases.

Inspection.—The urine should be examined in a clean glass vessel and its colour and clearness noted.

Normal urine is translucent and of varying shades of yellows and browns. No cloudiness or foreign bodies can be seen in it. The paler the colour the lower the specific gravity, the pale-coloured urine of diabetes mellitus constituting the exception.

Urine, milky, dirty, or white and opaque when passed may be due to the precipitation of earthy *phosphates* which is often the case in young, nervous and dyspeptic people. It has no pathological significance.

A cloudy urine, less opaque than phosphatic urine, may be due to the presence of *pus*.

Any abnormalities in colour, caused by *biliary pigments*, or by *blood*, must be noted.

Small *shreds* of tissue, more or less organized, are met with occasionally in adult men and are probably of prostatic origin (*see* Deposits).

The **Reaction** of the urine should be always noted. Acid urines are the rule in health. An alkaline urine may be caused by decomposition of urine in the bladder with the formation of ammonium carbonate through the action of micro-organisms. Alkalinity of this nature results from some hindrance to the proper emptying of the bladder, the urine being acid when secreted by the kidneys. Alkaline

secretion by the kidneys may be met with in anomalous states of debility, in neurasthenia, phthisis and some anæmias.

Specific Gravity.—Insurance urines are not uncommonly of a very low specific gravity from nervous causes, or on account of a good deal of fluid having been taken a little while before the examination, probably because the proposer knows he will be asked for a specimen and he makes sure of being able to provide one. The specific gravity should not be below 1008. If a very dilute urine is passed the applicant should be asked to call again and instructions given him to ensure a better sample being obtainable. Proposers who know they have a trace of albumen may wish to hide this fact by previously drinking copiously of water or other liquid so as to render the urine very dilute.

A specific gravity above 1025 is not infrequently met with, especially in warm weather. A high reading *per se* has no pathological significance, it simply indicates concentration of solution, mostly due to urea or saline components; when this is so, it should be explained in the report. Urines of high specific gravity are to be suspected of containing sugar.

Quantity.—Increased secretion of urine is met with in cold weather, and in two especially important

conditions from assurance points of view, namely, granular kidney and diabetes mellitus. It is always difficult to get any definite quantitative information about the urine, but where there is any marked increase in amount there is generally a history of calls at night which impress themselves on the memory more than do daily evacuations of the bladder. The information may also be volunteered as evidence of supposed good health that the urine is "nice and clear" and parted with "freely." A history of frequent micturition and increased amount is very important evidence, when there is a high tension pulse as well, of sclerosis of the blood vessels or kidneys. An increased quantity is also passed in diabetes insipidus and functional disease of the nervous system.

Frequency of Passing Water in small amounts may be an important indication of disease. In younger subjects it probably means local urethral or bladder irritation, possibly of gonorrhœal nature in the former, or tuberculous in the latter case. Pus will be found in such urines, and possibly blood also from tuberculous cystitis, and there will be pain.

In older males the frequent passage of small amounts of urine means most probably enlargement of the prostate.

Albumen.—The recognition of serum albumen in the urine, even in traces only, may be of the utmost

importance in preparing a report for assurance purposes, especially in proposers of adult age. Therefore it must be looked for with care, and two tests are all that are necessary to recognize its presence.

Tests for Albumen: 1. *Boiling Test.*—This is very delicate when conducted with due care. Into a thin test tube of diameter of bore about half an inch, pour urine to occupy three-quarters of the length of the tube. Boil the upper inch of the column of urine, holding the test tube by its lower end. If the urine be faintly acid or amphoteric in reaction, any *albumen* or *earthy phosphates* will be precipitated at once. Then add one or two drops of dilute acetic acid and boil up again. Any precipitate, especially when very slight, is best seen by holding the test-tube against the sleeve of a black coat, with the upper portion of the column of fluid at the upper line of the black background. The unboiled portion of the urine acts as a contrast to that portion in which any precipitate will appear. If the precipitate be due to phosphates it will at once disappear on acidulation, leaving the urine absolutely clear. If due to albumen the precipitate will persist.

Not uncommonly a slight haze of precipitate will appear on the second boiling and not before. This precipitate is due to the presence of a *compound proteid* when the urine tested is of a moderate

colour and specific gravity, and it will disappear on the addition of a drop of dilute hydrochloric acid. A compound proteid arises from the protoplasm and nucleus of the renal epithelium and has no pathological significance. In some highly coloured and high specific gravity urines any albumen present may only come down after the acidulation and second boiling of the urine, the probable explanation of this being that various nitrogenous substances, especially urates, have the property of protecting albumen from precipitation when boiled in acid solution, possibly by acting as bases (Dixon Mann).

It is absolutely impossible to tell by appearances whether a precipitate is one of earthy phosphates or albumen. The acidulation is necessary for this differential diagnosis.

If no precipitate of albumen appears by this procedure the urine may be pronounced free from albumen.

2. The *nitric acid* test is best performed in a wider test tube by pouring in first the urine (about an inch) and then carefully allowing half an inch of nitric acid to run down the test tube held almost horizontally, so as to get as distinct a line of demarcation between the two fluids. Or the nitric acid may be poured in first and the urine afterwards. These processes should be done very carefully. Another method is to introduce the

nitric acid underneath the urine by means of a pipette.

If any serum albumen be present a whitish cloudy ring will form at the junction of the two fluids sooner or later, according to the quantity present. In investigating urines with only traces of albumen a negative result should not be recorded until the test tube has stood in the upright position for 5–10 minutes without any cloud or haze forming. A cloud higher up in the urine is due to mucin or nucleo-proteids and has no pathological significance.

Dixon Mann points out that "If with a small amount of albumen present, the urine is added to the acid, a thin well defined white or opalescent disc appears resting on the acid; if the acid be added to the urine a hazy cloud is produced which extends from the surface of the acid some distance upwards, and then fades into the clear urine." "The contrast afforded by these two methods is strikingly displayed when small amounts of both serum albumen and a compound proteid are present in the urine." "When the urine is added to the acid, two closely approximating, narrow and well defined discs, with a thin layer of clear urine between them, appear within a centimetre of the surface of the acid. When the acid is added to the urine a diffuse cloud of coagulated albumen extends some

distance above the acid and higher up appears a broadish belt with margins not sharply defined, which represents the compound proteid."

Clear urine containing urates in excess may deposit a cloud of urates at once on the nitric acid coming into contact with it. The cloud is yellowish or fawn coloured, forms higher up than the albumen cloud and spreads downwards; it disappears on heating the urine. In highly coloured urines urea nitrate in crystals may be formed at the line of junction.

Many insurance examiners use the nitric acid test only and do not trouble with the boiling test, but the latter certainly is more delicate and should be used where faint traces of albumen are suspected in adult life with high tension in the circulation. *The use of the nitric acid test alone is in favour of the proposer.* There are other tests for albumen, but the heat and acidulation test is really the only one necessary and is the most delicate and accurate for insurance work.

Origin of the Albumen.—When albumen is present in more than traces without pus or blood there is as a rule no doubt of its origin from the kidney. When there are only small amounts present, the seat of origin of the albumen is not so certain.

Albumen may arise from disease of the renal

secretory apparatus or from slight catarrhal and unimportant changes in the urinary passages. If the albuminous body comes from the urethra this source could easily be eliminated by giving the applicant two vessels, and making him pass water freely and as forcibly as possible into the first to wash out his urethra, and then to pass a few drachms into the second vessel and finally empty the bladder into the first one. If the trace of albumen in the urine arises from the urethra it will be found in No. 1 but not in No. 2 vessel.

In such a case there will probably be some squamous epithelial cells from the urethral passage and also a few pus cells. Probably also there will be a history of recent gonorrhœa or seminal emissions. It is conceivable that in an important case it might be desirable to eliminate the bladder as a source of albuminous matter in the urine, and this could be done by catheterizing the ureters. But whatever may be expected of the medical referee in the next generation, he would now carry out all that is required of him if he expressed his doubts as to the source of albumen and left any further investigations for a special examination by an expert in catheterization.

Sugar.—The presence of sugar in the urine, even in minute traces, probably means some pathological condition of the body metabolism, and tests for sugar

must never be omitted. Whilst sugar when in large amount is met with in urines of high specific gravity it must be borne in mind that it may occur and be dangerous in urines as low as 1003 specific gravity. Colour is also no definite guide, for whilst diabetic urines are generally very pale, sugar may be present in dark urines.

For ordinary insurance work two tests alone are necessary—

1. *Fehling's solution.*—It is well to keep this in its two component solutions and mix small quantities to last a couple of weeks. Then the results are always trustworthy. About half an inch should be poured into a clean test tube and boiled. No change will take place if the solution is good and the test-tube clean. A few drops of the urine are then added and the mixture boiled again. If no change takes place, more urine, but not exceeding the amount of Fehling, should be added and the contents of the tube boiled again for one second; if there is still no change the urine is free from sugar. If the solution turns bright yellow and red at once on the mixture reaching the boiling point sugar is present, and no further test need be applied.

A *quick and absolutely reliable routine method* of examining urines is first of all to try the boiling and acidulation test for albumen, and if this is negative pour out all the urine but the last few drops and

add a quarter of an inch of Fehling's solution. Boil the mixture, and if no change of colour takes place there is no sugar present. A negative result both for albumen and sugar will be obtained in the majority of cases which come for insurance examination. If any change in the Fehling's solution occurs then a clean test tube must be taken and the first mentioned method used.

If the clear blue colour of the Fehling's solution turns greenish but does not become yellow there is no sugar present, but only some partially reducing agent of unimportant nature.

If the colour turns yellow when the fluid reaches the boiling point, or after a few seconds boiling, there is probably dextrose in small amount present. More prolonged boiling will bring about a reduction of the copper in the presence of several substances, the most important of which, in insurance work, are lactose, pentose, glycuronic acid, uric and salicylic acids and creatinin. A confirmatory test must therefore be used. The simplest and most reliable one is the phenylhydrazin test.

The *Phenylhydrazin test* for sugar.—Williamson's method of applying this test is most reliable and quick. Into a wide test tube put half an inch of sodium acetate crystals and half an inch of phenylhydrazine hydrochloride crystals and add two inches of the urine. Folding a narrow strip of

paper round the test tube as a holder, boil quietly, but constantly, for two minutes, then allow the mixture to cool naturally. When it is cold the deposit must be examined, and if any sugar be present, even in very small traces, sheaves of acicular canary-yellow glucosazone crystals will be found. If none of these crystals be present there is no sugar in the urine.

Darker yellow, round masses of short crystals are formed when lactose, pentose or glycuronic acid are present in the urine.

Creatinin forms no crystalline combination with the test.

Lactosuria must be thought of in female proposers whose urine reduces the Fehling's solution, and inquiry made as to whether they have been recently suckling a baby. It is not a pathological condition and passes off after weaning.

Pentosuria.—The best test is Bial's test. The solution is composed of ·5 gm. orcin, 500 c.c. of 30 per cent. H.Cl, and 20 drops strong solution of perchloride of iron, and it will keep for one year. Boil half an inch of it in a test-tube, add a few drops of urine; in a few moments a green colour develops which is indicative of pentose, not glucose. A further test is that pentose, unlike glucose, does not undergo alcoholic fermentation. Pentosuria is of no pathological significance; it

is not in any way related to glycosuria, and is no bar to insurance.

If the examiner has any doubt about the presence of sugar in small amount he should state so to the Head Office, when a special examination of the urine will be arranged for.

Traces of Sugar.—In cases where there is only a small amount of sugar in the urine, and of course no other symptoms of diabetes mellitus, further examinations should be made to find out whether the glycosuria is present only in the urine passed at certain times of the day, or during the whole 24 hours, or whether it is dependent on certain foods. In a case of suspected glycosuria a sample of the whole urine passed in the 24 hours should be examined with and without changes in the diet, as not at all uncommonly the sugar is present at one time of the day only; it may be after one special meal, or a special food, as fruit. Samples of the urine passed on getting out of bed, immediately after each meal, at bed time or after exertion, may also be examined. But even when one does this the information so obtained will tell us nothing more than that the glycosuria does, or does not, depend on special foods, or that it is persistent or intermittent, as the case may be; we shall be no nearer to determining the pathological condition underlying the glycosuria, whether it is pancreatic,

renal, adrenal or perversion of metabolism, and we shall be quite unable to foretell whether the condition will pass off or take to bad ways.

Phosphates may appear in large amount in some faintly acid or alkaline urines which are milky and opaque when passed; more frequently the phosphates are only precipitated on boiling the urine. Such a precipitation is immediately dissolved on adding a few drops of acetic acid.

A deposit of phosphates is frequently met with in nervous and dyspeptic but otherwise healthy people, and there is no pathological significance when it thus occurs. But it is frequently associated with neurasthenic states, a point which must be borne in mind.

Pus and Blood in urine are both best recognized by the microscope. The presence of either should at least cause the application to be deferred for further examination. Besides gonorrhœa, cystitis and pyelitis, genito-urinary tuberculosis may be the cause of the pus in the urine.

Biliary Pigments will very rarely be found in insurance urines. The iodine test is very reliable if carried out properly. A mixture of equal parts of the B.P. tincture of iodine and rectified spirit is made, and a small quantity gently floated on the surface of the urine in a test-tube: at the plane of contact a green disc forms; if the tube be agi-

tated the whole of the urine turns green if bile is present. Gmelin's test may be used to confirm the iodine test. This is best done by placing a few drops of the urine on a white plate so that a thin layer of the urine about the area of half a crown forms. Into the middle of this is added one drop of fuming nitric acid and the presence of bile pigments will be indicated by a play of colours ranging from reddish yellow to green.

The presence of biliary pigments must necessitate careful search for other symptoms and signs of disease, and, at any rate, a deferring of the proposal for further investigation.

Foreign Substances in the Urine.—*Flocculi* or shreds of material are occasionally seen in urines of adult proposers. Some of these are quite large, that is roughly $\frac{1}{4}$ of an inch long and about $\frac{1}{24}$ of an inch in width. In the majority of cases these shreds arise from the prostate and vesicula seminales, and are not of much pathological value. But they may arise from a condition in the urethra which would result from gleet.

Shreds containing many pus cells probably come from the *urethra*. They generally sink to the bottom of the vessel. They are dense, opaque, yellowish, white and friable and vary in size and shape. The pus cells are held together with more or less sticky mucus and the shred flattens out at once under a cover-slip.

Prostatic secretions may contain pus cells, but the characteristic features are the presence in them of large, round, hyaline bodies and stratified masses of amyloid substance, which are fairly granular within and usually enclose a central kernel. These two bodies arise from the prostatic glands and are not of a pathological nature. Spermatozoa may be present especially in the urine of continent young men about to be married, which may then give a reaction for albumen.

Casts.—The presence of organic casts of any variety in a urine must be regarded with grave suspicion. The hyaline variety is the least serious, and the fatty the most serious in prognostic importance ; the former is said to be without pathological significance in certain conditions (see page 249). Epithelial cells are, however, also suggestive of a nephritis in some form or other.

A microscopic body liable to be mistaken for a hyaline cast is a cylindroid which is three or four times as long, and often thinner and more irregular in contour than a cast. Cylindroids have however a distinctive form and are striking objects when met with. Their presence has probably no serious meaning.

CHAPTER X

EXAMINATION OF THE NERVOUS SYSTEM

SUBJECTS of marked disease of the nervous system very rarely apply for assurance. Occasionally, however, a man who has had some acute nervous affection in childhood, as infantile paralysis, which has left him with a monoplegia may have to be examined. In such cases the condition is obvious, and need not necessarily detract from the value of the life.

In ordinary work the *signs of nervous affections*, though most important, *are often very slight*, and require a trained medical eye for their perception. In no part of the examination for insurance ought the watchword "Discovery" to be more prominently before the examiner's mind than in the investigation of the nervous system.

General Inspection.—The facial aspect and general behaviour of the applicant may afford some information. If any paralysis of the facial muscles is observed its causes should be investigated.

Undue depression or exaltation of spirits will

rarely be met with, but it is quite possible that a man with early general paralysis of the insane might apply for insurance.

The *gait* also is unlikely to give any information, though alterations in it suggestive of nervous disease may sometimes be observed.

Fainting.—A curious functional nervous condition met with now and then in insurance work is to find the applicant, apparently a healthy man, go off into a faint after the examination has been finished. I have seen this twice. Such a proposer will probably say that he is liable to faint under novel, and what are to him unpleasant, experiences such as the medical examination for insurance. It is his variation of the quick pulse.

Eyes.—The eyes may yield important evidence. Inequality or changes in the shape of the pupils, changes of accommodation to light or vision, deficient ocular movements, inequality in the size of palpebral fissures must be looked for (*see* under General Examination).

Defects of vision of optic nerve origin are very unlikely to be met with, but if present must, of course, be carefully investigated. When the defects arise from alterations in the power of accommodation which are corrected by glasses, a simple mention of the nature of the defect is all that is necessary.

Tongue.—Fine tremors of the tongue, if marked,

suggest an excess of alcohol or onset of general paralysis of the insane. Any alteration in the power of protrusion must be noticed.

Reflexes.—The patellar tendon and the pupil reflexes should be examined in every proposer, especially when he is of adult age, for severe nervous disease in an early stage may thus be discovered. If any suspicion of nervous disease be entertained a careful examination of other reflexes must be made and reported on. The most important besides the pupil and patellar tendon reflexes are the Babinski reflex and ankle clonus.

Ear.—It is always necessary to ascertain whether there has ever been any ear trouble, with or without discharge in the past, or at the time of examination. Certain ear diseases, especially bone lesions of the middle and inner ear, are most serious and of volcanic nature; they may suddenly cause active intracranial lesions or septic poisoning and rapid death. If any deafness is complained of, or if any discharge be present, the cause should be ascertained and an examination with an aural speculum and the laryngoscope made and the results reported. If the medical examiner considers that a special report on the condition of the ears should be made by an aurist he should say so (*see* Ear Risks).

Tinnitus, or buzzing in the ear, with recent deaf-

ness, may be due simply to a plug of wax, when it means nothing. It also occurs in gouty conditions.

Dizziness, associated with ear lesions, points to some central nervous disease of serious nature. It frequently occurs in elderly people who have arterio-sclerosis without there being any ear trouble.

Vomiting when not connected with alimentary trouble, may arise in locomotor ataxia, or intracranial conditions.

Headache is rarely complained of by healthy people ; but it is occasionally met with in subjects of biliousness, or migraine. If chronic, a brain cause must be suspected, unless it be a bone pain in which case palpate the head, and if a tender spot be found suspect syphilis.

Tremor of the hands may arise from various causes, trivial or serious.

Congenital Tremor.—I have seen this in the hands in two proposers for insurance, both accepted as first-class lives.

Functional tremor may occur in nervous people or be the result of passing causes. A slight functional tremor of the head in healthy elderly people, often occurring in more than one member of a family, is not uncommon.

When a tremor cannot be explained by such simple causes, but is associated with *disease*, alcoholic

excess, or exophthalmic goitre must be thought of in insurance work; and the tremors of organic nervous disease, as paralysis agitans, or disseminated sclerosis, must not be overlooked.

Habit Spasms.—Slight facial twitchings may be seen occasionally in proposers, and less often convulsive movements involving the shoulder and head and neck muscles. Explosive cries affect some people instead of muscular movements.

Cramp in the Muscles.—If a history of troublesome and repeated cramp in the muscles, especially in the calf muscles, be obtained, alcoholic excess must be suspected. Such cramps come on in bed, and the subject of them generally gets out and puts the feet on something cold to ease the spasm. Cramp may be an early symptom of diabetes mellitus, and it also results not uncommonly from simple and passing causes.

Occupation cramp is most likely to be met with as writer's palsy. I have seen this once in an applicant for insurance. In the working classes it results from holding tools in the same position for a long time.

Tingling and numbness generally mean some nerve irritation or inflammation, and are most likely to be met with in proposers who take too much alcohol.

Anæsthetic Symptoms are not likely to be

complained of. If they be present their cause must be ascertained.

Neurasthenia.—Any history of "nervous breakdown" must be carefully inquired into. It is not at all uncommonly met with in commercial communities in men who have worked hard at some new business, or at one which is doing badly and causing much anxiety. The worry is most frequently the cause of the breakdown. The nature of the illness should be ascertained, whether it was "brain fag," or cardiac irritability, sleeplessness, etc., and of course, it is highly important to know if anything of the trouble persists at the time of examination.

Neuritis occurs most commonly in the sciatic nerve. It also not infrequently affects branches of the brachial plexus, and the facial nerve. The disease arises most commonly in persons of rheumatic or gouty constitution, but it may be the result of a chill, as in facial paralysis, or follow influenza, or in the brachial plexus be brought on by muscular strain, as in golfers. It is also a common result of alcoholic, diphtheritic and lead poisoning. When a history of neuritis is obtained the cause must be ascertained, for on this especially will the outlook depend. Muscular wasting frequently accompanies neuritis, and makes the case more serious.

Epilepsy.—Faintings, dizziness or temporary loss of consciousness, however short in duration, if repeated are suggestive of epilepsy. If drowsiness or sleepiness follows, the attacks are almost certain to be due to epilepsy.

Swimming feelings in the head without loss of consciousness are met with in bilious subjects; they have no adverse influence on health.

Insanity.—Cases of insanity are very unlikely to come before a medical referee, special reports being asked for when a proposal on the life of an insane person is made. However, a medical man may have to deal with them, and the value for insurance purposes of different forms of insanity is referred to in Section II.

CHAPTER XI

RACIAL EXPECTATION OF LIFE

THE following table was compiled by C. Theodore Williams from statistics published by French, German and American Insurance Reports. The English figures are the standard insurance expectation of life tables, calculated in 1869, the American figures were published in 1868, the German in 1883, and the French in 1892.

RESULTS OF INSURANCE OFFICES COMPARED—COMPLETE EXPECTATION OF LIFE

Age.	American.	British H.M. 20 Offices.	German. 23 Offices.	French.
20	42·199	42·101	39·683	41·839
25	38·806	38·382	36·401	38·193
30	35·332	34·726	32·886	34·382
35	31·784	31·051	29·329	30·584
40	28·177	27·389	25·798	26·833
45	24·537	23·778	22·345	23·175
50	20·912	20·271	18·964	19·659
55	17·400	16·926	15·770	16·344
60	14·098	13·808	12·848	13·287

The figures deal with male sex only, except the French, which are for both sexes.

From this table it will be seen that whilst the American is the best life at all ages, there is very little difference between the expectation of life of all the nations tabulated.

It is rather hard to believe that the American business man is a better life than an English insurer. The wear and tear and pressure of business in America are now greater than in England, and one feels loth to believe that the tables give an accurate statement of expectation of life for the present day.

Jews are frequently before the medical referee in business centres and, in my experience, they are very good lives. The women are rather inclined to grow stout when over 40, and then to suffer from glycosuria, from which they may die rather quickly.

Armenians living in commercial towns are frequent assurers, and I have myself examined and passed a considerable number. They are generally good lives whilst living in England, where many of them settle permanently. They are of medium height and good weight, not excessively heavy nor unduly light.

Much variation may take place in normal weight for height in different races, though in England

such variations do not appear as often as in America.

Insurance of Natives.—There are no statistics available on the question of insuring the lives of natives in oriental countries, but Cantlie, who has had a considerable experience of the Far East, looks upon Asiatic natives as bad lives. Those who insure are generally "Anglicised," and have adopted English eating and drinking habits with disastrous results to their health.

Natives in India in good circumstances, and living their proper life, are insurable at the same rates as Europeans in India, that is, with an extra.

The Hindoo has a racial tendency to glycosuria.

Occupation.—Certain occupations are much healthier than others, making proposers relatively more or less desirable for insurance. As a broad principle out-of-door occupations are healthier than those which necessitate indoor work. Fresh air is nearly everything. The following table is taken from the supplement to the fifty-fifth report of the Registrar-General (Poore).

Taking the mortality of all males as 1,000, the comparative mortality of various occupations is expressed by a number which is called the Mortality Figure, which is calculated from the death rates of each of the four decades between 25 and 65.

Clergy	533
Schoolmasters	604
Farm labourers	632
Railway engine drivers	818
Legal profession	821
Shopkeepers	859
Commercial clerks	915
Coal miners	925
Building trades	957
Medical profession	966
Textile manufacturers	1,054
Law clerks	1,070
Metal workers	1,128
General labourers	1,221
Innkeepers, servants, etc.	1,659
Dock and wharf labourers	1,829

CHAPTER XII

EXAMINATION OF FEMALE LIVES

Female Lives. — The following points are important. The regularity of the menstrual functions. The number, if any, of confinements, and their nature, whether natural, or involving instrumental help or followed by complications ; whether the applicant is pregnant at the time of the examination ; whether there have been any miscarriages ; if there have been miscarriages the question of syphilis must be considered, but very many abortions are due to non-syphilitic causes ; whether there have been any pelvic operations ; whether the menopause has been passed ; whether a hernia exists.

During lactation, owing to the presence of lactose, the urine may reduce Fehling's solution. The family history, especially of cancer, is important.

All female lives, especially elderly ones, must be examined very carefully, and the motive for assurance should be ascertained. A woman is sometimes insured by other parties who have an interest

during her life in the proposer's property, and the knowledge that the woman is not very healthy often determines the proposal, with or without honesty of purpose.

SECTION II

IMPAIRED LIVES

CHAPTER XIII

HEREDITY

Heredity.—As has been stated on a previous page, whilst the physical condition, habits of life, and general circumstances of a proposer are most important factors in determining eligibility for insurance, the family history, or heredity, must strongly influence the decision in the majority of proposals in certain groups of cases. The effect of heredity is considered in the subsequent pages wherever it has a bearing, but a few special observations may be made here.

Longevity.—H. Weber divides the family expectation of life into three groups.

1. *Average duration of life*, that is, the ages which the majority of members of most families reach. The years 60 to 72 are the limits for this group.

2. *Long-lived families*, that is, most members reaching 75 and over. This is a very important group, not only from the greater expectation of life, but also because members of these families stand acute illnesses and other ailments, including

gout, better than in the former group. In these families severe illnesses like exophthalmic goitre are better borne and locomotor ataxia tends to run a slow course. The prospects of a proposer with quiescent phthisis in one of these families are much better than in one with shorter lives. Not all the organs or functions of the body need retain their vigour unimpaired; the hair, teeth, senses, generative organs, memory and higher functions of the brain may fail, but such failure is not of vital import.

3. *Short-lived Families.*—Members of these families die before 60 from ordinary diseases or breakdown. Some become prematurely senile, the vascular system often being liable to degenerate and high tension to develop.

But there are many exceptions to early death in these families, in members who lead healthy out-of-door lives, and who take care of themselves.

Where certain diseases appear in families, it is more important to know the proportionate value of the incidence, rather than the number of members who are affected.

The early deaths of both parents should always be carefully considered, even although the causes of death should not be those which are ordinarily called hereditary diseases. Evidences of feebleness of vital powers, whether in relation to nutritional

defects, or to vulnerability to morbid poisons, should be looked for in the causes of death of the parents, and in brothers and sisters in early adult life (40 to 60).

Should both parents die of similar diseases, whether of tuberculous, of primary cardiac, vascular, renal or nervous origin, or of cancer, diabetes or alcoholism a large extra should be imposed, the amount varying with the nature of the disease, the age of the parents and that of the proposer (Ritchie).

Family Peculiarities.—It is well known that peculiarities of habit and build are met with in several members of a family, but when these have no bad effect on the general health they do not concern the insurance examiner.

Hereditary Disease.—*Early vascular* and *chronic renal diseases*, with or without consequent apoplexy, frequently run in families.

A high tension pulse is not uncommonly a family failing, and apoplexy or sudden death is frequently met with in more than one member of a family at about the same age.

Hæmophilia is distinctly hereditary, being transmitted to the males through the females of a family.

Cancer.—Females show a greater tendency to inherit whatever is the condition which leads to cancer than males do, and they also die from it at a younger age than their brothers would.

Tuberculosis also runs very distinctly in certain families.

Nervous diseases.—In certain neurotic families, insanity, hysteria, epilepsy, asthma, migraine and dipsomania may appear in different members, and a tendency to suicide may also be hereditary.

Joint affections as gout, chronic rheumatism, arthritis deformans frequently appear in several members of families who may, however, live to a good old age.

Acute rheumatism is often met with in more than one member of a family, and a tendency to the disease is distinctly hereditary. Chronic muscular rheumatism as lumbago also runs in families.

Some *skin diseases*, the most common of which are eczema and psoriasis, appear in different generations of some families.

CHAPTER XIV

HEIGHT AND WEIGHT

Light Weight.—Unduly thin people, that is those more than 20 per cent. below normal weight for height, run more risks, according to actuarial experiences, than do the unduly heavy ones. Their special risks are from tubercle and nervous affections ; as regards the latter condition, thin people often worry over trifles and are more likely to have nervous breakdowns. Diabetics are also often of very light weight, and in older people the presence of cancer must be considered. On the other hand light weights stand an acute illness better than stout people do ; and most of those people who live to be octogenarians are of very light build. The size of the bones and the general health of this class must be noted, for a slim, wiry, small-made man is better than a thin big-boned individual. It must be remembered that many people, especially women, who are thin below 25 grow to be more or less stout in later life. Such tendencies often run in families.

Family history is most important in judging of the risks of below-weight cases. If the family has always been small and light and yet long lived. such cases are good.

Decreasing Weight. — A history of weight diminishing progressively over a lengthy period of time without the presence of some removable cause is suggestive of a constitutional disease of a dangerous nature, possibly tubercle or cancer.

Obesity or undue stoutness, that is more than 20 per cent. above average weight for height, is against an applicant for insurance, especially if the weight is progressively increasing and is not amenable to moderate dietetic restrictions. But such lives do not come for examination as frequently as thin people. In addition to the weight, the girth of the abdomen at its maximum, generally around umbilicus, should be taken. This ought not to exceed that of the chest in full inspiration, or some say at the end of expiration. A tall, stout man is a worse life than a shorter stout man of comparatively equal weight, and a stout man under 40 is a worse life than one above 40 though below 60. Men who, when boys, were unduly fat before puberty are bad lives, especially if they inherited the obeseness. An overweight man of large frame, sound constitution and no family history of obesity, who is living a healthy

life, may be accepted on a limited payment policy terminable about 60 (Heron).

The risks from obesity are, the bad way the subjects bear accidents or acute illness, the liability to diabetes, cardiac failure, gout, and arterio-sclerosis. In Gossage's experience of 285 insurance claims of persons who had been more than 20 per cent. above the normal weight for age and height at the time of assuring, in 19 (6·6 per cent.) death was certified as being due to diabetes. The average duration of the policies was 13·7 years. On subtracting the overweights from the total number of claims (5,375), 5,090 claims remained, and of these 65 (1·28 per cent.) died of diabetes; that is, less than a fifth of the percentage among the overweights. Many stout people are big eaters and immoderate drinkers and without being able to take much exercise; they are especially liable therefore to the results of overfeeding. If an active healthy country out-of-doors life be led, so much the better; if a sedentary town occupation so much the worse.

Women probably carry stoutness with less risk than men, as it is more natural to them and because they are more careful in habits, and are subject to less risks from violent exertion or from accident.

The *profession* or *occupation* is important. Stout-

ness in publicans, brewers, cattle dealers, commercial travellers, butchers, or in any trade with a temptation to alcoholic excess constitutes a very bad risk.

At ages over 60 obesity is practically a bar to insurance.

Œdema of the legs when present in stout people is of absolutely bad significance, and shortness of breath on moderate exertion will require extra rating if not refusal. In obesity the possibility of the presence of myxœdema must always be borne in mind.

Height and Weight.—The ideal height for insurance purposes in a man is from 5 ft 7 in. to 5 ft. 9 in. As a broad rule, any height above 6 feet makes the eligibility of the proposer for insurance purposes more or less uncertain; for very tall men are not as long lived as those of medium stature. A tall man from a tall family, with history of longevity, would be more insurable than one who appears as a "sport" in a family of moderate height.

Tall stout men are worse lives than medium or below medium height stout men, and are not very acceptable for insurance. They bear acute illness badly and any accidents to them are liable to be more severe than in men of moderate weight.

In the matter of height and weight the family history is an all important factor in estimating prospects of life. Obesity and the other extreme, undue lightness of weight, are often hereditary in some families, the members of which live their expected span of life. Some people grow fat no matter what, or how much, they eat, and on the other hand no amount of dieting will fatten up many lean folk.

Either condition of abnormal weight may result from *illnesses*; e.g., one person may put on weight and another lose it after an attack of typhoid fever.

All insurance offices prefer men of normal weight and height, and most of them will make an allowance of 15 to 20 per cent. either way and accept otherwise good lives at ordinary rates. But beyond this 20 per cent. opinions and offices differ as to the advisability of accepting the proposal.

Some roughly take two stone above or below the normal weight as the limits in otherwise healthy subjects. Overweight or underweight in persons of feeble physique must be considered very cautiously.

The tables of **Weight for Height** are calculated for an age of 30; for any one above this age an addition of about half a pound per year above 30 would give average weight for that age, for

the tendency is to put on weight towards adult life.

HUTCHINSON'S ENGLISH TABLE OF THE MEAN WEIGHT IN RELATION TO HEIGHT IN 3,000 MALES AT THE MIDDLE PERIOD OF LIFE (FROM 15 TO 40) INCLUDING WEIGHT OF THEIR CLOTHES.

Heights.				Gross Average Weight in lbs.
ft.	in.	ft.	in.	
4	6 to	5	0	92·26
5	0 ,,	5	1	115·52
5	1 ,,	5	2	124·33
5	2 ,,	5	3	127·86
5	3 ,,	5	4	138·01
5	4 ,,	5	5	139·17
5	5 ,,	5	6	144·93
5	6 ,,	5	7	144·29
5	7 ,,	5	8	152·59
5	8 ,,	5	9	157·76
5	9 ,,	5	10	166·40
5	10 ,,	5	11	170·86
5	11 ,,	6	0	177·45
6	0 ,,	6+		218·66

The following table gives the average weights of 133,940 applications of selected American risks (Moss).

Height.	Age.						
	18–25	25–30	30–35	35–40	40–45	45–50	50–55
	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
5 ft. 0 in. . .	120	125	128	131	133	134	134
5 ft. 1 in. . .	122	126	129	132	134	136	136
5 ft. 2 in. . .	124	128	131	134	136	138	138
5 ft. 3 in. . .	127	131	134	137	139	141	141
5 ft. 4 in. . .	131	135	137	140	142	144	145
5 ft. 5 in. . .	134	138	141	143	146	147	149
5 ft. 6 in. . .	137	142	145	147	150	151	153
5 ft. 7 in. . .	142	146	150	152	155	156	158
5 ft. 8 in. . .	146	151	154	157	160	161	163
5 ft. 9 in. . .	150	155	159	162	165	166	167
5 ft. 10 in. . .	154	159	164	167	170	171	172
5 ft. 11 in. . .	159	164	169	173	175	177	177
6 ft. 0 in. . .	165	170	175	179	180	183	182
6 ft. 1 in. . .	170	177	181	185	186	196	188
6 ft. 2 in. . .	176	184	188	192	194	198	194
6 ft. 3 in. . .	181	190	195	200	203	204	201

The National Fraternal Conference (America) Committee came to the conclusion that longevity depends largely on build. The greater the variation from the average of 5 ft. 7, 8, or 9 inches the greater the risk. The lighter the weight the greater liability of death short of the expectancy from tuberculosis and nervous diseases. Overweights suffer from heart disease and apoplexy. The table shows the constancy of weight-increase with age-increase. Moss considers underweights when over 20 per cent. below the limit and overweights 25 per cent. above as poor risks.

CHAPTER XV

TUBERCULOSIS

Is Tuberculosis Inherited?—Whilst there is no absolute unity of opinion on the subject, the majority of observers look upon tuberculosis as very liable to appear in several members of a family, as being in fact hereditary.

But really it is not the disease itself, but a special predisposition to favouring the growth of tubercle bacilli in the body which is inherited. Tubercle bacilli are very widely distributed, and Schmaus even states that in a series of 500 specially conducted post-mortem examinations 97 per cent. showed gross, or minute, signs of the presence of tuberculous lesions. So it requires something more than the entrance of the bacilli into the body for the development of serious or fatal tuberculous lesions, and it is a susceptibility to the growth of tubercle bacilli in the body which is inherited. We also know that the risk of development of the disease, especially of phthisis, is diminished or increased according to the quantity of fresh or bad air

habitually breathed and diminished with avoidance of sources of infection, as infected houses, or contact with phthisical people. This knowledge enables us to do a good deal to modify the course of the disease, and the risks are correspondingly less than they were thirty years ago.

Whilst an hereditary tendency plays a distinct part in the development of tuberculosis, most insurance officers look upon the physical condition, mode of life and habits of the proposer as even more important—especially in regard to the possible onset of pulmonary tuberculosis.

Martius analysed a number of policies in the "Gotha" Insurance Co. (Continental), grouping the proposals into those which had, and those which had not, a tuberculous history at the time of insuring, all the cases considered being otherwise first-class lives. The tuberculous history was constituted by death from phthisis of a parent or brother or sister. The results show that 24 per cent. of the deaths of proposers with tuberculous history were from phthisis, whilst the mortality from phthisis from the whole of the cases investigated was only 12 per cent. Thus the risks from phthisis were twice as great in applicants with a family history of the disease as they were in cases without it.

According to Gottstein, a family tendency to tuberculosis is to be assumed if one or both parents

or brothers and sisters have died or suffered from the disease, and the tendency to the taint increases with the number of such members of the family.

A suspicion of a family tendency to the disease must be held if the proposer has any signs of tuberculosis in his body or is the sole child or one of two children ; it is stronger under the same circumstances if the proposer has lost several young brothers and sisters from acute infectious illnesses.

Bodily taints are—

(*a*) in very stout persons if the relation between the average circumference of the chest and the height is considerably below ·5.

(*b*) in middle weights with a relative value under ·5 and other bad signs present.

(*c*) underweights, without any other condition.

(*d*) the presence of thorax paralyticus or flat chest.

Previous tuberculous affections of other organs, especially of the cervical lymph glands, stamp the proposer as suspect. On the other hand there are other body conditions of less moment, as anæmia, leanness, which need not cause refusal in the absence of further bad signs.

Squire in 1895 opposed the view that the offspring of tuberculous parents are more liable to develop phthisis than those of healthy parents. He investigated a large number of cases of consumption,

taking special precaution to avoid the many errors which creep into the investigation of family histories, and states as a result that the difference in the incidence of disease in the offspring of the tuberculous and non-tuberculous parents is very small. He examined 1,000 families, comprising 6,400 children and obtained the following figures :— Percentage of the offspring of phthisical parents subsequently becoming tuberculous 33·16 ; percentage of the offspring of non-phthisical parents subsequently becoming tuberculous 23·65 ; percentage influence due to parents 9.51. King, of New York, has published similar conclusions.

Other observations seem to show that children of tuberculous parents who are more exposed to infection than other children are have some protective agent in the blood which tends to make them more resistant to the inroads of the tubercle bacillus.

Latham, from whose book I quote the latter opinions, is tempted to conclude that if reasonable precautions be adopted there is no reason why the children of tuberculous parents should develop the disease more frequently than the offspring of those who are not tuberculous.

Even if these observations be accurate, they will hardly for some time alter the methods of dealing with applicants with family histories of tuberculosis.

Age.—From Tatham's tables it is seen that in both sexes the chief liability to death from phthisis occurs about puberty. The maximum mortality is reached at the age 35–45 for women, and 45–53 for men. Female lives in England are less liable to succumb to phthisis after twenty than males. (See p. 197.)

Trades.—The phthisis mortality varies in diffierent trades. Taking farmers as the standard, for every 100 dying from phthisis there would be 567 innkeepers, from 411 to 643 porters, dock labourers, costermongers, tin, lead and copper miners or metal workers, 87 to 119 coal miners, 141 schoolmasters, 114 ironstone miners. For every 100 deaths in rural areas 119 took place in urban districts (Tatham).

As pointed out by Niven, the influence of a public-house on the dissemination of phthisis amongst its habitués is probably very great, not only from the predisposing effects of the alcohol consumed, but also from inhalation of the large numbers of tubercle bacilli which collect in such premises as a result of much spitting and want of proper cleanliness.

Phthisis and Insurance.—Insurance offices as a rule are very chary about accepting a phthisical risk. They all have their own methods of dealing with such risks, but many of their decisions are based on Thompson's classification of the different

degrees of risk, and this I quote from extensively in the following paragraphs :—

Males.—Thompson classifies the risks of hereditary phthisis for males in four divisions.

[N.B.—In seeking for a history of phthisis all illnesses or deaths from bronchitis, childbirth, asthma, inflammation or congestion of the lungs must be carefully inquired into, for many tuberculous conditions are so described.]

1. Least bad cases. Phthisis in one sister (it is worse if in a brother) or one collateral relation.

2. Bad cases. Implication of a brother and sister, many collaterals, especially on the mother's side, and if there be evidence of sexual limitation, and the father's heredity alone.

3. Very bad cases. Implication of grandparents, the father with one other of the children, collateral relations pointing to atavism, the implication of many brothers and sisters ; family asthma ; hæmoptysis without family implication, and the mother's heredity alone.

4. Mostly to be rejected. Implication of the father with many members of the family, the mother with other members of the family, the grandparents and parents, or many members of the family ; double heredity and hæmoptysis with family implications.

The age is such an important point that Thompson divides the periods of life into four.

1. Below twenty-five. No applicant with a distinct family history of phthisis should be accepted before twenty-five.

2. Between twenty-five and thirty-five. Reject the fourth class until after forty-five years and the second and third classes until twenty-eight. From twenty-eight to thirty-five add five years to the premium of the second class and seven years to the premium of the third class.

3. Between thirty-five and forty-five. Add three to five years to the second class and five to seven years for the third class. Take the first class without any extra.

4. After forty-five. Almost all cases of the first, second and third classes might be assured, though the paternal heredity still may demand addition. Of the fourth class many members implicated constitutes a great risk, whilst double heredity and family hæmoptysis are perhaps too risky for assurance at all. Any of the other cases must still be taken cautiously.

Female Lives : The risk during child-bearing is so great that it is unadvisable to accept any woman before forty-eight who has a history of family phthisis. When child-bearing is over females might be assured at additional, but not heavy, rates, and especially light in the event of paternal heredity being present. Maternal heredity requires a greater

addition and no case of double heredity should be accepted.

As opposed to the influence of heredity in phthisis is a history of longevity. When it occurs well marked the premiums may be easier than when there is no history of long life.

Under weight, not light weight, is a very serious matter even though no apparent disease be present.

The personal appearance, however good, must not be allowed to influence the effect of inheritance.

Pollock adds 18*s.* per cent. on a whole life policy in cases of proposers under thirty-five who have one consumptive parent.

An American Opinion.—It is interesting to read of the opinions of an American medical referee on the same question.

Marsh has been led to the following conclusions from his experience :—

1. That the history of consumption in any member of the immediate family increases the probability of its appearance in an applicant.

2. That consumption in a brother or sister is at least of equal importance as its occurrence in a parent.

3. That persons who are under the standard or average of weight are much more liable to consumption than those above this standard. That the peculiarity of constitution which is indicated

by the inability to take and assimilate a proper amount of nutriment indicates a susceptibility to phthisis, or at least is a reasonable suspicion of such predisposition.

4. That persons who exhibit a robust and well developed body have little susceptibility to consumption.

5. That the personal condition of weight and robustness has far more value than the family history in diminishing the liability to consumption ; therefore

6. The evidence presented by a well developed body may outweigh the suspicion attached to unfavourable family record.

7. That these influences of family history and personal weight are of the same grade for every age, and their importance is not lessened by the fact that the individual has reached middle life.

In deciding upon the eligibility of an applicant for Life Insurance in whose case there is suspicion of future danger from consumption, his personal condition is of the first, and his family record of the second importance.

Whenever an applicant presents a robust physical appearance with a weight at least equal to the standard or average as given in the tables, he may be accepted, notwithstanding any taint in

the record of his family. In Marsh's experience such persons have small liability to consumption, although not protected from it. If, however, his weight does not come up to the average and he gives a history of consumption in brothers, sisters or parents, he is to be regarded as an unfavourable risk. This does not mean that all such persons are to be absolutely excluded from insurance, but each case must be carefully scrutinized, and the decision based upon the circumstances of occupation, character, past history, etc. When these are favourable, insurance should be given on terms most advantageous to the company, by limiting the amount, or modifying the form of policy ; when unfavourable, the applicant should be either postponed until he has gained sufficient weight or else be absolutely rejected.

Marsh's concluding paragraph sums up the whole subject very well.

Other Tuberculous Lesions.—Enlarged Glands in the Neck may be reported in the past medical history of an applicant for insurance. It must be borne in mind that such glands were not necessarily tuberculous, for any chronic irritation in the mouth, post-nasal cavities or pharynx, such as carious teeth, post-nasal adenoids, and enlarged or ulcerated tonsils may set up cervical adenitis which will disappear with the removal of the excit-

ing cause. These enlargements occur in what are known as strumous or scrofulous subjects, that is in those whose lymphatic system is unusually susceptible to irritation, a condition which is indicated by enlargements of the glands to which the lymphatic vessels draining seats of irritation run. Other children may have similar sources of irritation without the adenitis. *Caseating glands* are almost certainly tuberculous, though suppuration may take place in glands of the neck from other causes, as in scarlatina. It is possible that the tubercle bacillus, even although it is said to be present in all strumous glands, can not of itself set up adenitis, and that it is only found in glands which have enlarged from one of the above-mentioned causes of irritation, but this question cannot be discussed here. The fact which concerns us is that when the tubercle bacillus finds a congenial soil for its proliferation we have a tuberculous adenitis, a more serious condition than a scrofulous adenitis.

Where the enlargements of the glands persisted for three or more months tuberculosis was probably present. If it can be established by the medical referee that the glandular enlargement was due to simple irritant causes, and the applicant is otherwise a good life, there is no reason why he should not be accepted at ordinary rates, especially if he be over 25.

It is a different matter if the glands were tuberculous. Whilst some observers think that tuberculous adenitis which has been cured protects from tuberculous lesions in later life, others take a different view and maintain that many adult phthisical patients show scars of operations in early life for tuberculous lesions, whether glandular or arthritic.

All cases with early tuberculous history must be carefully considered. If it is some years since the glands ceased to give trouble and the applicant is up to normal weight, has a good family history, lives a healthy life and is in good physical condition he may be accepted at ordinary rates. If he has not such a clean record he is more or less unacceptable according to the adverse points present.

Synovitis.—What holds good for tuberculous adenitis is also applicable to tuberculous synovitis.

Tuberculous Bone Lesions are more serious. If amputation has been necessary and the health has been restored the case has an insurable value, probably better than where conservative operations have saved a limb. In the latter case much depends on the condition of the seat of operation at the time of assurance. Weill-Mantou accepts all persons who have suffered from hip-disease in infancy if they have reached the age of from 35 to 40, and if their general condition is good.

Caries of the Spine is not very desirable for insurance purposes. This lesion of the vertebræ is generally serious, and even after it has apparently healed may contain material for further spread of the tuberculous disease. Any such case could only be accepted many years after the supposed subsidence of the disease and if the proposer was otherwise a first-class life. (See p. 265.)

Tuberculosis of the Genito-urinary Tract.—It is most unlikely that a man with such a condition would come up for insurance, but if one did he would be uninsurable. A question that might arise is what value is to be put on a life which has had one kidney removed for tuberculous disease? For the question to be discussed at all, it would be necessary for a cure to have resulted, and for the applicant to have been in good health for some time and apparently quite well when seen. Renal tuberculosis is most frequently confined to one kidney, and the question is what extra risks does a man with only one kidney, but that a sound one, run? The operation of nephrectomy is of comparatively recent origin and statistics of its results are too few at present to enable an opinion of prospects of life to be formed. I myself should be very unwilling to accept such a life, even with the most favourable report as to general condition and habits of life, under any circumstances.

Tuberculous orchitis.—A history of the removal of a testicle for tuberculous disease would be against insurance.

Skin lesions. (See p. 199.)

CHAPTER XVI

GOUT, ARTHRITIS DEFORMANS AND CHRONIC RHEUMATISM

Gout.—There are certain points about the ætiology of gout which are of importance in insurance work.

Age.—No age, from school days onwards, is exempt in hereditary gout, but typical joint attacks usually first appear between thirty-five and fifty. When the attack is postponed till later in life it is generally mild. The attacks are not infrequently most severe and numerous in the fourth and fifth decades of life.

Sex.—Men are much more commonly affected than women, in whom typical paroxysms are rare. Irregular gout, however, occurs not uncommonly in women.

Heredity.—More than half of the cases of gout occurring in the insuring classes are hereditary; the women who escape arthritic gout transmit more certainly than the men. H. Weber states that paternal heredity is worse than maternal. When gout is newly acquired by a man, he can trans-

mit to his children, especially to the later born ones.

Build and habits.—Large men and big meat eaters, and alcoholic drinkers of sedentary life invite attacks of gout.

Occupation has a great effect on the incidence of gout. Thus Dr. Tatham's tables for the years 1890, 1891, and 1892 of males in England show that if the relative mortality of all occupied males be 100, that of maltsters is 150, brewers 500 and publicans (innkeepers and their servants) 600. Occupations in which lead is used are specially liable to lead to gout.

According to Meikle the **Expectation of Life** of a gouty person of twenty-five years of age is about six years less than that of a non-gouty person. This difference gradually grows less and less with advancing age until sixty, when there is still a year against the gouty person. At and after seventy there is no difference in the expectation of life.

Gout and Insurance.—Symes Thompson is of the opinion that gout calls for rejection in a large number of instances, and an average addition of 20 to 25 per cent in cases recommended for insurance.

The occurrence of *albuminuria* or *glycosuria* in a gouty subject is a bad sign, as it probably indicates some disease of the kidneys or of metabolism, and all such cases should be rejected.

Heron looks upon gout as a grave blot. If a

proposer over thirty has escaped all symptoms, and is free from bad habits, he may be taken at ordinary rates.

Marsh (America) is of the opinion that it is inadvisable to insure any gouty subjects at ordinary rates, or on the whole life system. Whilst the presumption is against the acceptance of an applicant who has had gout, exceptions may be made in special cases limited to subjects with an entire absence of hereditary tendency, in whom the first attack shall not have appeared before thirty years of age. The attacks shall have been few in number, slight in character, and the last shall have been several years previously. There must be no personal history of urinary colic, of uric acid in excess in the urine, or of lithæmia. The habits must be abstemious, both as to eating and drinking, and the proposer must give evidence that he appreciates the necessity of taking care of his health.

Lereboullet and Mauriac are of the opinion that proposers affected with, or predisposed to, gout may be accepted for insurance if they are over thirty-five and are in good health. Below this age the occurrence of gout points to a very special predisposition to disease, and even when no joint troubles are present such proposals should only be accepted with an addition to the premium. When cardio-vascular and renal lesions are present the life is uninsurable.

H. Weber believes that gout counteracts a phthisical tendency.

Arthritis Deformans, the so-called rheumatoid arthritis, may be met with in male or female proposers. The extent of the lesions varies.

1. Heberden's nodes occur especially in women and affect the distal phalanges. They are the slightest, and most chronic manifestation of the disease, and Osler says that the subjects of them rarely suffer in the larger joints, and that they may be regarded as an indication of longevity; but he quotes Charcot as stating that in women with these nodes cancer seems more frequent.

2. The polyarticular affection is by far the most common. The hands and feet are generally involved first and the other joints in a centripetal order. The lesions are generally symmetrical. The spine may be involved and become rigid (*see* Spinal Curvature). Osler states that the majority of these cases reach a quiescent stage with the deformity only to cause inconvenience.

The partial or monarticular form chiefly occurs in older people and affects the large joints.

Garrod says that a family heritage of tubercle is an important factor in some cases.

Value of Arthritis Deformans for Insurance.—Where there is a family history of arthritis deformans and long lives, an ordinary policy may

be issued if the proposer has healthy habits and is in easy circumstances. If the habits are bad or there is not a good history the proposal should be dealt with as in gout. If there is involvement of many joints and the disease is progressing, and crippling the applicant, the value for insurance purposes is not good.

Muscular Rheumatism and Lumbago are frequently met with in long-lived families. If the attacks are intermittent and come on only occasionally they are of no adverse import. If the condition becomes chronic the outlook is not so favourable and an extra premium is required or a policy of the short term type.

Chronic Articular Rheumatism may gradually develop in adult life, and lead to stiffness and pain in one or more joints. The general health need not suffer unless the pain be very severe, when debility ensues. Chronic sclerosing valvular lesions may be coincident with the joint trouble. In the well-to-do classes the disease may last for years and the subjects live to old age. Under favourable circumstances, which include the absence of valvular lesion, and in subjects with good family history a proposal for a limited number of years terminating about the age of fifty-five or sixty might be accepted.

Acute Rheumatism. (See p. 222.)

CHAPTER XVII

SYPHILIS IN RELATION TO LIFE ASSURANCE

Syphilis very rarely appears in the returns as a cause of death among the assured. During twenty-one years ending in 1894 which Dr. Claude Muirhead investigated, the number of deaths in his company was 11,000 and only one was attributed to syphilis, and during the eleven subsequent years there was not another death from syphilis.

Syphilis, naturally, is never put on a certificate which is to be handed to the friends, so figures as to its frequency as a cause of death are impossible to obtain. It is certain, however, that many deaths result from the sequelæ of syphilitic infection long before the attainment of the natural expectation of life. Of these sequelæ the most common are nervous lesions—general paralysis of the insane, and locomotor ataxia—and cardio-vascular lesions as aneurysm, arterio-sclerosis, apoplexy, hemiplegia and aortic valvular lesions.

Syphilis in England.—There are no figures giving the frequency of the disease amongst the general population of England. The asylum returns show that it is a very common cause of mental disease, Mott says, of 25 to 40 per cent. of all male cases of insanity.

The experiences of insurance companies on the point are not of much value, as information about syphilitic infection is frequently withheld by proposers.

Syphilis on the Continent.—More information as to the incidence of syphilis on the Continent is obtainable (Shillitoe).

In Denmark, where it is a notifiable disease, syphilis attacks 4·3 per 1,000 of the entire population per annum, or, in epidemics 6 per 1,000 per annum. In large towns such as Copenhagen one in every ten of the population is syphilitic.

Berlin is estimated to have 12 per cent. of its population syphilitics. Erb found this percentage in 6,000 well-to-do patients. Paris is believed by Fournier to have 15 per cent.

Syphilis and Insurance.—Tiselius reports from nine Scandinavian life companies 850 deaths of those who had syphilis at the time of assuring. In 17·64 per cent, death was due directly to syphilis, from lesions of the heart and blood vessels, diseases of the nervous system, liver, and syphilis itself,

and in 29·88 per cent. to causes probably syphilitic in origin.

In Teleky's Viennese statistics of 578 cerebro-spinal lesions, in only ninety-three cases were the policies in force more than thirty years.

The question of syphilis in women rarely arises in the classes which insure in England.

The opinion most generally held is that a man who has had syphilis is not as good for assurance purposes as one who has not been infected with the poison. But if suitable treatment has been carried out, and there has been freedom from all symptoms for a certain time after cessation of treatment, most companies will accept the risk at ordinary rates of premium. Other companies make a small addition to the premium for all cases acknowledging a history of syphilis. Medical men also differ on the point, and as the question is an interesting and important one, I will refer briefly to some of these divergent views which are given more fully in the discussion before the Life Assurance Medical Officers' Association.

Arthur Shillitoe. Cases to be declined.

1. No case to be considered until at least three years shall have elapsed from the time of infection—i.e. two years' treatment, and one year's probation free from treatment and all symptoms.

2. Proposers should be declined who wilfully

attempt to mislead by misstatements as to facts.

3. Many cases will be found to have been treated in the early stages with iodides only—these equally with those which have been inefficiently treated with mercury are amongst the worst risks. He would prefer to recommend a case with cutaneous gummata than one of these, especially as many of such cases are not so liable to lesions of vital parts. The stress of the disease falls on that system of the body which the individual has tried most severely.

4. Alcoholics and free livers are of course bad risks.

5. No case acquiring syphilis after forty-five is to be recommended.

6. The family history, as regards neurosis and other hereditary taints; the individual himself, the effects the attack and treatment may have had upon him must be carefully considered.

7. All cases showing early implication of the nervous system, e.g. transitory paralysis, diplopia, epilepsy, etc.

Shillitoe believes that there are very many cases which we may safely recommend for assurance, our chief guide being the answer to the question—Has the case been efficiently treated, i.e. with mercury, for two years continuously and reacted satisfactorily? There must also have been a

further period of one or two years with freedom from symptoms and all treatment, and the life must in all other respects be a good one.

de Havilland Hall thinks that every man who has had syphilis, whatever treatment he has had, is not so good a life as the man who has not had syphilis. He would not take a syphilitic at an ordinary rate. He has been particularly struck with the incidence of syphilis on the larynx and has seen a sufficient number of cases of death arising from laryngeal conditions as the result of syphilis to make him feel that syphilis is a disease which may kill comparatively early. No case should be taken under four, or possibly five, years from the infection, and at least for a year should show complete freedom from all syphilitic appearances.

Gowers has met with many cases in which what was supposed to be thorough early treatment was followed by later constitutional symptoms. He thinks that to allow treatment to have an influence, or a considerable influence, on the judgment of cases for life assurance is an error, and to allow continuous treatment to have an influence is a double error. Cases do occur in which thorough early treatment has been followed by later constitutional symptoms.

The two chief elements in causing loss are vascular disease, i.e. arterial disease, especially as affecting

the arteries of the brain and heart, and possibly of the spinal cord in the earlier period, and general paralysis in the later period. The danger from tabes is much less than that from general paralysis.

In his opinion every proposer who has had a chancre of any kind within the preceding five years should be rated up five years, and every man who has had any secondary symptom within five years should also be rated up five years.

Pye-Smith would not regard a proposer who had had syphilis as a first-class life; but would make anybody who had suffered from it pay a syphilitic rate, and would not recommend any one who was still suffering from any active manifestation of the disease for assurance. The cases he would have must be cured and the rate added would be from five to seven years according to age.

Pernet believes with Trousseau that involvement of the ocular apparatus means a serious attack of syphilis, and he considers that the history of syphilitic iritis or other eye trouble of luetic origin ought to exercise a certain amount of influence on the premium, and the candidate with that history should have a certain number of years added. He points out that intra-urethral chancres may often be overlooked, and the discharge from them wrongly ascribed to gonorrhœa.

Dyce Duckworth.—If the applicant has been

properly treated, say for two years, and shows no lesions, he would be accepted, other things being favourable in his condition, without any extra at all. He thinks that the majority of people who insure their lives in large and important offices in England are of a class who, if they become, or have been syphilitic, can afford to be well treated. They are living wholesome lives, and there is but slight apprehension of their ultimately developing any further symptoms. Everything depends on the character, constitution and habits of the individual you have to deal with, and whether he can get the best advice, and be properly cared for and looked after; for in such a case syphilis has a much greater chance of being recovered from than in the case of a poor man who is badly fed, intemperate, and imperfectly treated for his condition or not treated at all.

F. Parkes-Weber would make five years addition or a history of syphilis in the case of persons in ordinary health (and without any active syphilis) who apply for life assurance within five years of the last active sign of primary or secondary syphilis. But he feels very decidedly that there are certain cases who present themselves with primary or secondary syphilis in which assurance may be risked with a relatively moderate extra, even whilst there are still signs of disease on the applicant.

Such cases are adults of twenty to thirty years of age, bodily and mentally well developed, who are without any detrimental family history of degenerative disease of the circulatory and nervous systems or of tuberculosis, who are both able and willing to undergo treatment, and in whom there is no suspicion of intemperance in alcohol.

Colcott Fox.—A man who has had ordinary benign symptoms, and has undergone an adequate mercurial treatment, and is in good health, may be accepted after an interval of at least one year from the cessation of treatment and four years since infection. As symptoms appear in the vast majority of cases before forty, the life is more valuable after that age, unless the disease be contracted later in life.

Applicants with a history of severer infection, with relapses, or of inadequate treatment, or who have contracted the disease after fifty, should only be accepted after a longer probation, and either at increased rates, or for a limited period.

Those in whom syphilis has implicated the viscera or the mucous membranes, other than the tongue, in the tertiary period should be rejected.

Heron.—If disaster involve a community it may affect the health of a large number of well-to-do persons and people with a syphilitic history, who for years have been apparently healthy and are

suddenly poverty-stricken may suddenly show signs of syphilis which had been latent for years.

Buxton Shillitoe had also seen in many cases syphilis in severe form recrudescent in patients in time of commercial distress and crisis. If a syphilitic patient has been under proper treatment for a couple of years or more, and has been without symptoms for six to twelve months and provided the man were in good health, he would take the applicant at ordinary rate.

It is a very different thing if severe secondary symptoms are present. Such a case must be postponed for proper treatment, and then if free for twelve months after conclusion of the treatment he might be taken with a certain addition, varying according to his age, etc. A man with tertiaries in any special form ought not to be taken except on very extreme terms. His proportion of tertiary syphilis after his own treatment of the primary condition was about 1 per cent.

Byrom Bramwell does not think that any man who has had syphilis should be accepted as a first-class life. With some exceptions, speaking generally, in every case in which a history of constitutional syphilis is disclosed an extra should be imposed.

In his experience of 107 cases of grave cerebral and spinal syphilis in which the time of the onset of the disease of the nervous system after infection

was definitely ascertained, 12·1 per cent. occurred during the first year, 40 per cent. during the first five years, and 68 per cent. during the first ten years after infection.

It is probable that tertiary lesions occur in about 10 per cent. of all cases of syphilis, and if it were granted that the expectation of life in every one of these cases was shortened by 10 years, one arrived at the conclusion that, on an average, in every case of syphilis the expectancy of life was shortened by one year as the result of typical tertiary lesions.

He thinks that probably only a small part of the mortality from syphilis is due to typical tertiary lesions; a much larger majority is probably due to aneurysm of the aorta, to aortitis and resulting aortic incompetence, general paralysis of the insane, tabes, cirrhosis of the liver and arterial degeneration due to syphilis.

It is not stated in the paper whether these figures are taken from hospital or private cases, or both, but Dr. Bramwell tells me that both classes of cases are drawn from.

J. Hutchinson takes a more favourable view of a syphilitic history.

The fact that a man has had syphilis ought not to weigh for anything at all in reference to insurance, and there are only a few exceptional cases in which severe complications had developed in which it

should be taken into account. He has known amongst his private patients exceedingly few cases in which syphilis in any way seemed to prejudice life.

He has no strong impression that albumen in the urine of syphilitics is a specially evil omen. He could easily count the cases in which it led to anything serious.

"If a man came to me with a primary chancre and nothing more, and he were in good health, and if I knew he was a man likely to submit to judicious treatment, I should say to any insurance office I was concerned with, 'Take this man by all means, there are no extraordinary risks: there are some little risks associated with him, but it is very probable he has a good sound constitution in other respects.' The most important risks are run in the secondary period, but unless the case was quite exceptionable, unless there was something already revealed which showed that the patient had a risk which could be appreciated, he would not say that the mere occurrence of secondary symptoms would at all appreciably influence his estimate of the probability of life. In old age syphilis is a little more prejudicial than in earlier years.

Continental Opinions.—Runeberg is inclined to look upon all deaths from cerebral softening, heart disease, sclerosis of coronary arteries, etc., before

fifty as syphilitic in origin in 50–75 per cent. of the cases. Syphilis also plays an important rôle in the causation of localized arterio-sclerosis.

Jacobson (Berlin) refuses all cases of syphilis in the four or even five years following infection, and all proposers who show signs of syphilis when examined are postponed for 1 to 2 years after the disappearance of the symptoms. All others are taken without additional premium.

Salomonson (Copenhagen) thinks two or three years after infection sufficient delay, but only if there has been proper treatment ; the assurance to be for a term of years ending between 40 and 50 and always with additional premium, and the older the proposer the higher the premium.

Marsh (America) advises six years' probation period after the initial lesion, and with proper treatment, because Fournier's experience shows that half the cases of tertiary syphilis occur during these years. Only persons who are up to the full standard of physique and health should be accepted.

Possible Sequelæ of Syphilis.—General Paralysis of the Insane if present, or suspected, in a proposer would require refusal. It is very fatal and often after a rapid course, the average duration of fifty-two cases in the experience of Claude Muirhead being two and a half years, and the average age of death of these cases forty-four years. Many deaths

take place amongst the insured from general paralysis (52 in 3,658 deaths, Muirhead), hence the importance of carefully examining the pupil and knee reflexes in all adult proposers, whether they give a previous history of syphilis or not. It is probably in all cases due primarily to syphilis, which has been inefficiently treated, and it is increasing in frequency in England.

It is not very common in women, but a husband may infect his wife with syphilis and both suffer from general paralysis, as I have seen once in practice. When it does occur in women it is generally in the lower classes and not in those likely to insure. My case was an exception to this however.

General paralysis is also a very frequent cause of death amongst the assured on the Continent. In Florschutz's experience in four years (1893–1896) there were 164 deaths from the disease at an average age of forty-nine years.

Age at Death.	Numbers.	Policies in force in Years.	Numbers.
30–40	49	0–1 year	5
41–50	72	1–5 years	33
51–60	37	6–10 ,,	58
61–68	6	11–15 ,,	39
		16–20 ,,	14
		20 and over	15

This table, which is taken from Shillitoe's paper,

shows the dangers which insurance offices run from their policy-holders dying of the disease.

Fournier's experience of 112 cases of general paralysis shows that the disease rarely develops during the first four years from infection (four cases) that it develops more frequently from the sixth year (seven cases) to the tenth year (fifteen cases) and that it rarely occurs over twenty years after infection (five cases). Seventy-three of the 112 cases occurred between the sixth to the twelfth years after infection.

The fatal age is between forty and fifty years.

Guilly found a lesion of the aortic valve in 51 of 200 post-mortems on general paralytics (Shillitoe).

In Byrom Bramwell's opinion, judging from the age at death of the cases recorded by Muirhead, the expectation of life in general paralysis is diminished on an average by 19·99 years.

Tabes Dorsalis also in all probability requires primary syphilitic infection for its development. It is much less frequently a cause of death in insurance experience than is general paralysis, only six cases occurring in Muirhead's returns for fifty-two cases of general paralysis. In the Scandinavian returns the ratio was nine tabetics to eighty-seven general paralytics. It runs a slower course and is more amenable to treatment and develops after a longer latent period than general paralysis and is

therefore not such a source of loss as the latter disease. Guilly believes that aortic disease is frequently met with in locomotor ataxia, 65 times in 134 cases.

In Byrom Bramwell's experience of ninety-five cases of tabes with definite histories 14·8 per cent. developed the disease in the first five years, 41·1 per cent. during the first ten years, and 67·4 per cent. during the first fifteen years after infection. In thirty-two fatal cases which had come under his own observation the average duration of the disease was 8·87 years. In seventeen of these thirty-two fatal cases in which the exact date of the infection was definitely determined the expectation of life was diminished by an average of 15·88 years. These were both hospital and private cases.

Arterial Disease is a frequent result in an early period of tertiary syphilis. Every case of sudden hemiplegia, cerebral hæmorrhage and thrombosis occurring in young adults without Bright's disease, or heart disease, must suggest syphilis, and very frequently in these cases a history of the infection will be obtained. Gowers found that of forty such cases, in about one quarter the arterial disease developed in the first two years after acquiring syphilis, in about one half in the first five years, nearly three-quarters in seven years, four-fifths in ten years and the others over the next seven years.

Aneurysm very probably in the majority of cases, if not in all, has syphilitic infection as a predisposing cause. It is not an uncommon cause of death in insurance returns; in Muirhead's returns there were sixth-nine cases in twenty-one years, and the average age at death of these was fifty-five years.

Hutchinson saw a carotid aneurysm in a lady who had had syphilis.

Sir Patrick Manson states that aneurysm of the aorta not uncommonly comes on in young men in the East who indulge in violent exercise after having received a certain amount of treatment for syphilis.

Syphilis and Tuberculosis.—Douty, during five years' observation of patients in high Alpine latitudes, came to the conclusion that 30 per cent. of the men with phthisis were syphilitics, perhaps more. They were of the upper middle classes, as a rule, and had lived hard-working business lives, and were between thirty and forty years of age. Douty does not say whether these men were English, foreign or both, a point of importance inasmuch as syphilis seems to run a severer course on the Continent than in the British Isles.

He further states that many directors of sanatoria and hospitals on the Continent tell him that the proportion of syphilitics amongst phthisical men is thirty and forty or even fifty per cent.

Klause had told him that in the phthisical wards at the Charité, Berlin, fifty per cent. of the men were syphilitic.

Douty also states that fifty per cent. of the patients in the venereal department of the hospital showed signs of lung disease.

Hutchinson in 1896 had known exceedingly few cases of phthisis in syphilitics. He only knew of three cases in which the patient soon after treatment for syphilis developed tuberculous disease of the lungs. But he had also seen a good many syphilitic patients who, whilst under his care, had suspicious symptoms about the lungs.

In England, Walters estimated that syphilis was an accessory cause of tuberculosis in about five per cent. of 134 male patients.

Pautrier states that in Paris pulmonary syphilis is much more frequent than is generally supposed, but gives no figures (Shillitoe).

Syphilis and Cancer.—Some authorities regard lingual leucoplakia as syphilitic in origin, and if not treated this condition nearly always ends in cancer. Cancer may also develop on syphilitic lesions, active or cicatrized, gummata, scars of gummata, or sclerosis linguæ. It may also occur in syphilitics without local lesions being evident ; perhaps because the buccal mucous plaques after cicatrization have left an epithelium of lessened resistance. Mouth

cancer is rare in women, and syphilis is less common in women than in men (1–8, Fournier).

The younger the age at which cancer occurs the greater is the probability of the patient being a syphilitic.

Hutchinson says that if a patient has sclerosis of the tongue, and is continually in the habit of smoking, he is a very dangerous patient to take for life assurance, not from the syphilis, but on account of the smoking.

After considering all the foregoing evidence, and judging from the experience afforded by practice, there seems to be no alternative but to conclude that *syphilitic infection is a distinct prejudice to a proposer for insurance*, and that all syphilitics should be only accepted with the addition of some few years to the premium. However, different insurance offices have different methods of dealing with these proposals, and the best thing for the examiner to do is to ascertain and report fully on the facts of each case, leaving the decision to the Head Office.

Congenital Syphilis.—A history of the death of one or both parents from syphilitic sequelæ at a time when the disease could have affected conception must make the medical referee specially careful in his examination. Proposer's previous

history, especially of disease in infancy, is most important, and the condition of the permanent teeth, the bones, the eyes and the angles of the mouth must be carefully investigated. The complexion is almost always pale. One or more of these physical signs may be met with in young adults with syphilitic parental history.

Evidence of inherited syphilis in a proposer would forbid assurance.

Proposals are occasionally received in which there is a history of a parent dying from syphilis which was contracted after the date of birth of the proposer. Such a history of itself would not affect adversely the proposal, but the accuracy of the history must be carefully established.

CHAPTER XVIII

ALCOHOL AND LIFE ASSURANCE

Alcohol Heredity.—There is no doubt that a tendency to excessive drinking is often hereditary, and therefore when the cause of death of a parent or brother or sister is given as disease of the liver, dropsy, gastritis, or the "results of a fast life," alcoholism must be suspected, and a question on the point will generally elicit the desired information. If a proposer with such a parental history is a total abstainer or really a moderate man, and otherwise sound he may be accepted at ordinary rates, but if he drinks between meals, or immoderately, he must be declined. The outlook is worse if several members of the family were alcoholics.

Alcohol in Business.—The use of alcohol in business is an important question. The alcoholic habits of those engaged in public-houses, wine dealing and other branches of "the trade" are referred to under Occupation.

It is well to find out whether the proposer, especially if a commercial traveller, is in a trade in

which treating is customary, as it was a generation ago in most businesses. But in recent years it has been found that coffee is as effective for this purpose as alcoholic drink and is without any of the disadvantages of the latter. The increase in the number of cafés round important mercantile centres, as for instance round the Royal Exchange of Manchester, is striking evidence of the change for the better in commercial habits of the present day. In response to a request from one of my companies for information as to whether the consumption of alcohol was increasing amongst business men in Manchester, I made inquiries from many people, mostly well on in life, connected with various trades, and one and all said that there was no doubt that much less wine, spirits or beer was taken during business hours than twenty-five years ago. Then coffee was a trouble to make in hotels after the lunch or dinner in the middle of the day, and spirits were drunk; now it is a regular thing to serve after a meal in hotels and restaurants. In many trades and businesses, treating by alcohol is replaced by a friendly cup of coffee, but the custom still persists in certain trades which make their headquarters at hotels.

One traveller whom I examined was in a trade in which he was expected to drink spirits over his bargains; he used to order the best gin, and as he

did most of his business in places where he was known, he was supplied with water only, for which he or his unwitting friend paid the price of spirits. So the landlord had no objection, and my proposer felt better in health.

There is no doubt also that much less wine is consumed in the middle classes at meals, or dinner parties, than was the case twenty years ago. It is not usual now for the port wine to be passed round more than once after the ladies have left the table.

Moderate Drinking. — So-called moderate drinkers may be very dangerous lives. They often consume a good deal of alcohol in the twenty-four hours by the summation of frequently repeated small doses. Moderate drinking is bad in people who have no business occupation. A more reliable account of their habits may be obtained from the reports of friends, or from the private medical man, than will be afforded the examiner by the proposers.

A history of drinking between meals is always bad, and any applicants confessing to it, or suspected of it, should be dealt with cautiously and declined or accepted only with an increase of premium.

It is wise to inquire in detail into alcoholic habits by judicious questioning, and the proposer may be surprised when he finds from the medical referee that he takes far too much. If you suspect

a man of taking too much, it is always wise to palpate the abdomen carefully, and if the liver can be felt to be enlarged, the proposal should be declined.

When a man states that he is a total abstainer inquire how long he has been so, and, if of recent date only, seek for the reason. Reformed drunkards are very risky lives as they almost invariably take to alcohol again before many months are over. Age is important in alcoholic habits, a man over forty being better able to stand alcohol than one of twenty-five.

My own idea of a temperate or moderate man is one who takes, at most, nothing more than half a pint of beer, or a couple of wineglasses of light wine with his midday meal, a similar amount with dinner in the evening and one ordinary glass of whisky and water at bedtime; *nothing between meals* and no alcoholic and bitter appetizer before a meal. A man who has to take a glass of brandy and soda in the morning before he feels fit for anything is probably a very immoderate drinker.

Any one constantly taking small doses of alcohol without feeling any the worse for it is more likely, eventually, to suffer from ill effects of some description than is a man who gets drunk occasionally and leaves alcohol alone in the intervals.

Total Abstinence in Relation to Life Assurance.—Whitaker's figures on this subject

are very interesting. Over a period of sixty years about 60,000 whole-life policies in healthy male lives, half of which approximately were abstainers and the other half non-abstainers, were issued by his company, and the results seem to show conclusively that, *ceteris paribus*, the whole-life total abstainer is decidedly better for insurance purposes than the non-abstainer. During the strenuous working years of manhood, from twenty-five to sixty years of age, the annual mortality rates among the former were, on the average, 40 per cent. lower than among the latter in the company's policies. And as evidence that the assured in the Institution were good average lives is the fact, that the mortality of their total abstainers was lower than the mortality experience of the principal life offices of Great Britain among healthy males, as shown in the standard life assurance tables on the basis of which the life assurance business of the country is conducted.

All medical referees do not agree that the best life for assurance purposes is the bonâ-fide total abstainer, many believing that the moderate consumer of alcohol is the better of the two groups. But here, just as a thin medical referee thinks better of underweights than of over-weights, and the stout referee holds the opposite view, so does the medical man of moderate alcoholic habits think that his own type of man is better than a total abstainer, thereby disagreeing with

his teetotal confrère who prefers a man who takes no alcohol whatever. The temperance institution figures are very convincing, and there is moreover the difficulty in assuring that true moderation will be observed, and the physiological amount of one and a half ounces of absolute alcohol (Parkes) will not be exceeded. The moderate drinker with a family history, especially parental, of heavy drinking is certainly a risky life.

CHAPTER XIX

INSANITY—SUICIDE—EPILEPSY

Insanity.—The medical referee is not likely to have to examine and report on a case of insanity, though applications are now and then made on behalf of relatives of inmates of asylums for insurance of an insane person. Such reports would be made when possible by a mental specialist, as very special knowledge is required to decide on the prospects of life of an asylum patient, so much depending on the nature of the disease. But any medical man may have to report on such cases, and he will also have to consider and inquire into the family history where insanity has occurred in ancestors or collaterals. There is no doubt that a tendency to insanity is hereditary, the extent of which varies directly with the number of mental cases which have occurred in the parents, grandparents, uncles and aunts. Therefore full and careful inquiries as to the family history must be made, and they should include epilepsy, suicide, alcoholism and hysteria, as well as insanity, for all these conditions

are occasionally associated in family histories. It is also important to get an accurate statement as to the health and ages of death from ordinary diseases of members of the family, as not only are the insane much more liable to other diseases and have much less expectation of life than the mentally sound, but it is also believed by some observers (Fox) that there is a general tendency amongst the mentally sound members of such families to ordinary diseases and earlier death. Jones has frequently noticed the occurrence of phthisis in insane families. Epilepsy in the insane shortens life still further by an average of about ten years (R. Jones) and if this is so in asylums, where such care is taken of them, it is probable that ordinary epileptics are still worse lives.

The influence of heredity in the causation of mental disease has been summed up briefly by Savage. Those points which interest the medical referee are as follows :—

" Heredity has a small share in the causation of general paralysis ; it is more frequently seen in relationship with melancholic than maniacal states. This has some connexion with the longer life of persons nowadays. They not infrequently show the weight of years in mental depression. Melancholic states are much more likely to recur in families than maniacal disorders ; all forms of insanity, especially

sensory hallucinations and their resulting delusions with fixed obsessions, are chiefly dependent on hereditary taint; moral imbecility and asocial and criminal tendencies often arise in very neurotic families.

Idiocy, mental weakness, and eccentricity are common in the children of physically decadent parents.

There is no *such thing as transmission of any form of insanity direct*, but there is a distinct danger of the passing on of a nervous instability which leads to mental disorder resulting from slight or even normal physiological strain."

Insanity and Insurance.—Gowers does not think that a family history of either insanity, or epilepsy, or both, as a rule, need depress a life below the average if a proposer is over twenty and otherwise unexceptionable. But there may be cases in which a family tendency is so strong, and is manifested so definitely in collaterals of the same generation, as to compel its recognition. A previous history of insanity should as a rule preclude acceptance, whilst previous attacks of epilepsy are generally equivalent to the present existence of the disease. Certain forms of each disease, if established and stationary, may be accepted at increased rates, but the choice of such cases requires expert knowledge.

Savage would decline all cases of general paralysis of the insane ; any case of syphilitic brain disease ; cases in which melancholic symptoms are present or have been present on more than one occasion before maturity ; acute mania, if there has been more than one attack before twenty-five or thirty ; alcoholic insanity ; all young idiots and imbeciles ; delusional cases ; all epileptics. All forms of adolescent insanity with stupor, recurring cases of mania, and senile melancholia are possibly insurable. He thinks that if the age of 30–35 be safely passed without breakdown in a man with family history of insanity, the proposer may be taken as a first-class life.

Suicide is also distinctly hereditary and, moreover, often occurs about the same age in different members of a family. The dangerous ages (Jones) are from 25–30 and 35–40 years ; in the Scottish Widows experience (Muirhead), of 127 cases the average age of death was forty-seven years.

Some offices protect themselves from loss by a special clause repudiating liability for death from suicide, but others do not. It is interesting to note that there seems to be an hereditary history of phthisis in a large number (29 per cent.) of suicidal cases in asylums (Jones).

Epilepsy. — When a proposer suffers from epilepsy in its major or minor forms he is not insurable. In inquiring for a history of it the

importance of faints, dizziness or temporary loss of consciousness, even if but a second or two's duration, must be borne in mind.

Epilepsy is hereditary in many cases. Gowers thinks the chances are one in six that some child of an epileptic parent will present the disease, and that if he has reached the age of twenty without doing so the chances are perhaps one in fifty. When to these is added the small influence of epilepsy on the duration of life it is evident that the risk to an office, even from parental epilepsy, becomes very small if a proposer over twenty has presented no symptom of it himself and the risk lessens with each succeeding year of life. But it does not entirely cease, and it need not be said that that which is insufficient alone to deserve weight may increase the effect of other unfavourable elements in the assessment of the life.

CHAPTER XX

MALIGNANT DISEASE

Cancer.—The following paragraphs on cancer risks are taken from a paper by Dr. Frank Payne on the relation of cancer to life assurance, 1898.

The chief mortality from cancer occurs late in life, 95 per cent. of the deaths taking place over thirty-five years of age, over 80 per cent. of all cases over forty-five, 75 per cent. between forty-five and seventy-five. The most fatal period is the decade 55-65, but 65–75 is not much better. Even above seventy-five a large number of deaths are due to cancer. If therefore a person is fated to die of cancer his death will most likely be between the ages of fifty-five and sixty-five, while the chances of it occurring in the decade before and after are about equal. The chances are five to one that he will not die of cancer before forty-five and five to three that he will not die before fifty-five. The age of death from cancer is in great contrast to that from phthisis. (*See* p. 193.)

Males.—Death from cancer occurs, as a rule, so

late in males that the risk would be almost neutralized in the case of a policy calculated to mature and be payable at the age of fifty-five. The limit of sixty would cut off a considerable portion of the risk. The death even of both parents from cancer, which is a rare event, need not modify this rule, since it depends upon the expected age at death. For a whole life policy the life is generally expected to extend beyond these ages in order to be profitable. Therefore in some cases an addition to the premium may be required. One death from cancer in the family may be neglected, two such deaths require an addition, but hardly ever rejection.

Females.—There is a far greater cancer risk for females than for males, and in the following respects :

1. Greater absolute numbers of deaths at all ages, a higher rate for population, and a higher rate in comparison with other causes of death.
2. The liability begins earlier, being noticeable even at the decade 25–35, and being then higher than that of males at 35–45.
3. The maximum liability occurs in the 45–55 decade as against 55–65 in males.
4. A high rate of liability lasts even longer than in males ; the total period of liability is therefore longer.

Death from cancer in females occurs, on the

average, so early that the expedient of a policy payable at a fixed age would not meet the case. In a whole life policy the death of even one relative from cancer must be taken into account. The death of the mother from cancer requires a substantial addition. If one other female relative has died from the same disease the risk is serious, and in some cases prohibitive. There is a *special risk in females* arising from the frequency with which cancer of the breast and perhaps of the uterine organs is transmitted by inheritance. Therefore two female deaths in the family (including the mother) from cancer of the breast makes the life ineligible for assurance.

This may be equally true for uterine cancer also. The death of a male relation from cancer is less serious, but a female life with a well established family history of cancer should not be accepted at the ordinary rate.

The age at which any life, male or female, is accepted must be taken into account. A young man with a predisposition to cancer (even if he should ultimately die of it) will probably have paid premiums for a good many years, and thus the office may be guarded against serious loss. But in the case of those accepted in middle life, the cancerous age is so near at hand that some loss is inevitable if they die of that disease. In such cases,

therefore, the precautions above suggested should be more rigidly enforced.

In the family history the age at which death occurred in the relatives is important in weighing prospects of life.

MORTALITY FROM CANCER AND FROM PHTHISIS IN ENGLAND AND WALES 1881–1890 (PAYNE).

	CANCER.		PHTHISIS.	
Ages.	Deaths.	Rate per Million.	Deaths.	Rate per Million.
All ages . . .	161,920	589	473,968	1,724
Under 5 years . .	712	20	18,950	536
5–10 years . .	332	10	9,502	290
10–15 ,, . .	332	11	15,680	521
15–20 ,, . .	563	20	42,471	1,545
20–25 ,, . .	859	35	57,802	2,324
25–35 ,, . .	5,221	128	118,508	2,901
35–45 ,, . .	18,315	584	98,178	3,132
45–55 ,, . .	36,069	1,545	63,913	2,737
55–65 ,, . .	45,761	2,868	34,606	2,169
65–75 ,, . .	38,318	4,160	12,485	1,355
75 and upwards .	15,438	4,295	1,873	521

From these figures it will be seen that of the 161,920 cancer deaths very nearly 135,000 or 83 per cent. occurred over 45 years of age, and only 26,300 about 17 per cent. below 45, whereas of the phthisis cases 361,000 deaths, or 76 per cent., occurred before 45 and 113,000, or 24 per cent., afterwards.

I have taken the numbers in the above table of both cancer (159,981), and phthisis (387,315) deaths above the age of 20, that is of the ages at which almost all proposals for insurance are received, and find the following interesting contrast :—

Ages.	Cancer.		Phthisis.	
	Deaths.	Percentage of total Deaths.	Deaths.	Percentage of total Deaths.
20–45	24,395	15·2	274,488	70
45 and over . .	60,464	84·7	112,877	30
20–55	99,517	37·7	338,401	87
55 and over . .	135,586	62·2	48,964	13

The age groups, total number of deaths for the age groups, and the percentages of the total deaths above twenty years which the deaths in the age groups amount to are given for both cancer and phthisis.

As a rule **Operations for Malignant Disease** will debar from assurance. In some cases there may be a doubt of the diagnosis which length of time with good health after the operation would help to settle. I examined a proposer who had been operated on five years previously for sarcoma of the upper half of the fibula of the right leg. The growth was said to have developed after a kick at football, but the surgeon, a leading man in his

profession, had definitely stated at the time of the operation that the growth was sarcomatous. When I examined the applicant there was absolutely no sign of recurrence anywhere and the health had been since the operation, and was at the examination, quite good. I considered the proposal to be acceptable at ordinary rates.

CHAPTER XXI

FEMALE LIVES

THE special risks attached to female insurances are those associated with child-bearing and with cancer of the breast.

Pregnancy.—It is difficult to collect information as to the death rate directly associated with child-bearing in the classes from which most females who insure come. Hospital figures overstate the risks for the insuring class ; they will, however, give us some information as to the relative pregnancy risks run at different ages and in primiparæ and multiparæ.

The death rate at the Edinburgh Maternity Hospital for 7,045 married women was ·767 per cent. ; for 974 primiparæ it was 2·053 per cent. ; for 6,071 multiparæ ·56 per cent. (Playfair and Wallace.)

The death rates per hundred of multiparæ and primiparæ at different ages were :—

Age.	Primiparæ. Percentage Death Rate.	Multiparæ. Percentage.
20–24	1·362	0·094
25–29	2·793	0·548
30–34	11·111	0·466
35–39	10·000	0·766
40–44	—	1·214
45 +	—	5·405

Therefore women who have borne a child are safer lives than those who still have the first confinement before them, and the older a primipara the greater the risk of the child-bearing. Child-bearing over the age of 35 is more dangerous than at ages between this and 20.

Where there is a distinct family history of difficult labour, as is not infrequently the case, a proposal from a woman who may have children must be carefully considered. It would be safest to decline a proposal until all chance of child-bearing has passed. There is always considerable risk to the mother from the abnormal deliveries which are necessary in these cases.

A history of several abortions must raise the question of syphilis, but many women abort frequently from other causes. When a proposal is made at or near the probable time of the menopause careful examination for evidence of disease

is necessary and it is wiser to postpone acceptance until the climacteric is safely passed.

At the International Congress of Medical Officers of Life Insurance held in Paris, 1903, it was agreed that all healthy pregnant women should be accepted at ordinary rates and that companies might take what measures they considered necessary to protect themselves against frauds which seem to be attempted in such insurances. It is stated that on the continent whilst the average age of death of women is higher than that of men it is lower in the insuring classes. This fact makes examiners very careful in dealing with female proposals.

Some insurance companies require additional premiums for any female policy, others take them at male rates. It is therefore only necessary to ascertain and report all the facts likely to influence the judgment at the Head Office and leave the decision to the officials there.

Phthisis and Cancer.—Females are less liable to succumb to phthisis after the age of twenty years than males are but they are decidedly more liable to cancer, malignant disease of the uterus, breast and ovary being so frequent. The cancer rate for males at all ages for the three years ending 1901–3 was 706 per million living of that sex and for females 991 per million (*see* Phthisis and Cancer).

A female life after child-bearing is over is generally better than a male life.

Hernia (q.v.) in any form in a woman is a worse risk than in a man.

Heart Disease.—Mitral stenosis in a woman has a special interest in view of the possibility of child bearing and the effect which this might have on the heart. French and Hicks, who have analysed the obstetric histories of 300 women over 20 years old who had mitral stenosis, find that the majority bear children well, and that when heart failure develops in relation to child-bearing it is very often not with the first pregnancy, but after several pregnancies.

Probably no company would accept for insurance a woman with mitral stenosis or any cardiac lesion whilst bearing children.

CHAPTER XXII

SKIN

Eczema, in adult proposers, is frequently a symptom of a gouty constitution, in which case it is the general condition which must be dealt with.

When it occurs as the result of dietetic idiosyncrasies it need have no adverse influence on a proposal.

Psoriasis, though difficult to cure, has no special adverse effect on the health.

Lupus.—No case with active lupus, or extensive scars from healed lupus is eligible for assurance. Not only is the disease liable to recur in these cases, but malignant growths also not uncommonly start on an extensive scar.

Where the lupus scar is limited in extent, the disease was probably a local affection, and if no activity has been shown in it for ten years, the proposer, if otherwise unexceptionable, might be accepted at ordinary rates.

Syphilis.—No case with a syphilitic rash is eligible for assurance. With scars of previous eruptions the general bodily condition of the applicant

must be carefully investigated for signs of tertiary syphilitic disease.

Birth-marks or *vascular nævi* unless unusually extensive and liable to injury need not adversely influence an insurance proposal.

Raynaud's disease and *scleroderma* are serious conditions and would prohibit insurance.

CHAPTER XXIII

RESPIRATORY SYSTEM

Epistaxis, if habitual, is a symptom of some local or general disease. In the former case it would be best to defer the application until the cause of the epistaxis has been removed. Of general causes in adults, arterial or renal disease is the most common, and would prohibit insurance.

Post-nasal Adenoids may be present in a youthful proposer, and whilst harmless in themselves, they are generally a source of weakness from the obstruction to entrance of air into the lungs. It is advisable to defer any proposal until the growths have been removed.

Nasal Cavities.—A history of suppuration in the accessory cavities of the nose may be met with. I had one such case which had been operated on some months previously for empyema of the antrum of Highmore. It was practically healed when I saw it and I had no hesitation in passing the life, as it was otherwise altogether unexceptionable. If there is still suppuration and the general con-

dition of the applicant is not so good, a report from a specialist is advisable and it will also be safer to defer the proposal until the disease is relieved.

Hay Asthma.—This form of nasal catarrh, headache, and sometimes true nocturnal asthmatic attacks, which comes on at certain seasons of the year only, generally in June, and is due to irritation from pollen, is hereditary in a large number of cases, and often occurs in families with neurotic history. It lasts only a few weeks each year and tends to become less severe as the subject grows older. When uncomplicated with any other abnormal conditions it need be no bar to insurance.

A similar condition of nasal catarrh and headache may arise from animal emanations, as in the case of a lady of my acquaintance who cannot ride behind a horse without the trouble appearing.

Hæmoptysis—that is bleeding from the lungs—is a serious symptom. If it has arisen from injury or strain some years previously, and has left no traces in the lungs, and the proposer is a good life, there is no reason why he should not be taken at ordinary rates.

If it arises from heart disease it is a good safety-valve symptom as far as the primary lesion is concerned, but makes the case uninsurable.

A history of hæmoptysis associated with a more

or less persistent cough is bad, as it would be almost certainly due to pulmonary tuberculosis. If it has arisen in any subject with tuberculous family history the proposer, if under 40 years of age, is uninsurable, even if the blood has not reappeared for some years. There will almost certainly be some signs of disease in the lungs in such cases.

If a proposer above 40 gives a history of cough and hæmoptysis over fifteen years previously, and has a tuberculous family taint, but has been quite well in the interval, is of good weight for height, and also has no signs of disease beyond, perhaps, a cicatrix in the apex, if he lives a healthy, abstemious, out-of-doors life, it might be safe to accept the proposal for a limited time at ordinary rates.

Acute Pneumonia very frequently (5–10 per cent. English statistics and 30 per cent. continental observers) recurs in the same subject—one instance has been published of a thirtieth attack and several cases of third, fourth, or fifth attacks. Netter believes that the liability goes on increasing with each successive attack, and that whilst pneumonia recurs in 26·8 per cent. of those who have had it once, it recurs again in 35 per cent. of two-fold sufferers. But whilst acute pneumonia may be the most frequently recurring of all acute diseases a previous history of one or two attacks would not call for any extra in England in an otherwise good life.

Pleurisy.—Bowditch gives some most important and interesting figures from his own and his father's practice (in America) as to the frequency of phthisis following attacks of pleurisy. Out of 90 cases of pleurisy, 32 became phthisical in later life, and 31 died, the other being alive but having developed phthisis 10 years after the pleurisy. Of the 31 cases 6 died of phthisis under 5 years from the date of the pleurisy, 16 under 7 years, 7 from 10 to 15 years, and 2 in 18 years. Other statistics of the onset of phthisis after pleurisy are Richochon (France) 30 of 32 private cases, and from literature 178 of 310 cases; Barrs in England 21 of 57 (infirmary cases); Hodges 40 per cent. of 130 cases (phthisis in 7 years); Fiedler (Germany) 91 of 112; Cabot (Massachusetts) 117 of 221 (death or phthisis in 5 years); Hamman (Johns Hopkins Hospital) 30 of 88 cases and of 562 cases recorded in literature, 29·7 per cent. became tuberculous.

At the Winyah Sanatorium in America 201 of 1,000 cases of phthisis had pleurisy before the onset of the former (von Ruck). These figures all show the seriousness of a previous history of pleurisy, wet or dry, in an applicant for insurance. Modern observations also suggest, from inoculation experiments on guinea pigs, that the majority of pleural exudates contain tubercle bacilli.

Bowditch's experience is the most valuable for

our purposes for it shows that phthisis may develop eighteen years after pleurisy, his cases having extended over a period of thirty years.

Acute, essential or primitive pleurisy, pleurisy *a frigore*, is therefore very frequently tuberculous in origin.

Secondary Pleurisy.—An attack of pleurisy which can be definitely ascertained to have been secondary to some acute illness, which passed off soon and left no signs of disease behind it need not sensibly diminish the value of a life if it occurred some years previously and if the proposer has a good family history and is otherwise perfectly sound. Such pleurisies are non-tuberculous in origin.

With a history of an attack of pleurisy a most careful examination of the case is necessary and all the following points must be borne in mind in estimating the prospects :—

1. The nature of the illness.
   (*a*) Primary, or
   (*b*) secondary.
2. The duration of the illness.
   (*c*) Was it of a few weeks, or
   (*d*) several months duration ?
3. The length of time which has elapsed since recovery
   (*e*) Several years, or
   (*f*) few months.

4. Whether "dry" or with "effusion" does not matter so much.

5. Any tuberculous taint in the family history.

(*g*) Yes.

(*h*) No.

6. The condition of the lungs, whether

(*i*) Absolutely normal, or whether

(*j*) any traces are left behind, such as adhesions and impairment of the respiratory capacity of the lungs.

7. The applicant's general condition.

(*k*) Healthy and of normal weight, or

(*l*) delicate looking and below weight.

8. Habits of life. Whether he leads a

(*m*) Healthy out-of-door life or follows a

(*n*) sedentary occupation.

9 Age.

(*o*) Below 30, or

(*p*) above 30.

A case with any one or more of the a, d, f, g, j, l, n, o, points positive will be more or less unacceptable according to the number of them present.

With f present alone, it is advisable to defer acceptance for six months at least.

Empyema frequently develops from a secondary pleurisy, it is rarely tuberculous in origin. A history of an operation for empyema makes the life doubtful for insurance purposes. If the opera-

tion took place some years previously, if only a portion of a rib was resected and the wound closed up in a couple of months, and the proposer has remained well ever since, the proposal might be considered. If the applicant, at the time of examination, is in good physical condition with air entering well into both lungs, has a good family history, and lives a careful healthy life, a policy at ordinary rates, especially on a limited payment system, might be issued. Any tuberculous taint or defect of constitution, or marked pulmonary lesion would forbid acceptance.

Asthma.—A distinction must be made between essential or spasmodic asthma which is met with at all ages in subjects of arthritic diathesis or gouty parentage, and secondary or symptomatic asthma which occurs in chronic bronchitis and emphysema.

The rarity of death in a paroxysm of asthma has given rise to the belief that asthmatics are likely to live to a good old age. This is not the case, and the subjects of asthma are by no means desirable for purposes of assurance. Asthma very frequently leads to emphysema and chronic bronchitis.

Mahillon recommends for acceptance either for limited term or whole life policy asthmatic subjects below 35–40 years, with no family history of tuberculosis, and no special exposure to tubercle contagion, in whom the attacks are only at long

intervals, and do not last more than 24–48 hours, who do not cough, expectorate, or have any dyspnœa or respiratory trouble, whose heart and blood vessels are quite sound, and habits of life healthy. If the attacks are precipitated by causes which can be avoided, such as animal emanations or errors in diet, and especially if they are getting milder and less frequent, so much the better.

Asthmatics above 45, obese, with a suspicion of excess of fat about the heart, with arterio-sclerosis, gout or emphysema, with constantly encumbered bronchial tubes are uninsurable.

Asthma as a symptom of chronic bronchitis and emphysema is dealt with in the paragraphs which follow.

Chronic Bronchitis with a, so to speak, flabby condition of the bronchial mucous membrane which constantly secretes mucus and more or less pus, and accompanied by expiratory dyspnœa or chronic asthma, is not likely to be present in an applicant for insurance, although those subject to it often live to ripe age. No company would take the risks of such a case on a whole life policy, even though there be no involvement of the heart. If there is an hereditary history of deaths from chronic bronchitis a short term endowment policy might be issued to proposers of favourable circumstances and habits.

Emphysema with barrel-shaped chest, very

restricted respiratory movements and obliteration of the cardiac dullness may be made out in some applicants for insurance, but I have had to report on it once only. It often is hereditary and may exist for many years without materially impeding the activity of one subject to it. In these cases there will probably be no secondary involvement of the heart. If met with in a man with family history of the disease and of good hereditary expectation of life, in easy circumstances, leading a healthy out-of-door life, taking care of himself and temperate in habits, the case might be accepted on a short endowment policy, but there are risks from intercurrent diseases in this best class. If however the heart is involved, or there is bronchitis as well, the case had better be declined, as it should also be if the proposer's condition in life and habits are against him. Some young men who have gone in strongly for athletics and long distance running are said to have the antero-posterior diameter of their chest increased out of proportion to the transverse diameter, but although I have examined several athletes for insurance I have never seen anything like a barrel-shaped chest or restriction of respiratory movements and have always been able to make out the heart dullness by percussion. If I met with a true emphysematous chest with restricted expansion in a young man I should not consider him a first-

class life, however good his other record might be.

Emphysema frequently hides *latent phthisis*. No case with abnormal heart or blood vessels or with less movement between forced inspiration and expiration than 1¼ inches (about 3 cm.) or at least 2,000 ccm. measured by the spirometer should be accepted. When there is increased resonance and a feeling of resistance to percussion at the apex of the lung, and when the general condition is only moderate the outlook is bad (Hirtz).

CHAPTER XXIV

CARDIO-VASCULAR DISEASE

Age at Death from Heart Disease.—In the figures published by de Havilland Hall there were records of 48 cases of valvular disease, of which 45 lived over 20 years after entry, 9 of these living 40 and more years after entry; the average age at death was 65·7 years.

Under the wider designation of heart disease were 154 claims. The average age at death was also 65·7 years but there were 20 deaths within 10 years of entry. Cases of valvular disease not definitely specified would also be included under this heading.

In Muirhead's report for 21 years are recorded 1273 deaths from heart disease, a heading which includes disease of the heart undefined (487), valvular disease (339), fatty degeneration (102), syncope (121), enlargement (84), angina pectoris (76), and rupture (4). The average age at death was 62·79 years, *which was 4·5 years older than the average age for the total mortality from all causes.*

Statistics given by C. Theodore Williams show

the average age at death of 438 cases which died of heart disease to have been 59·3 and that for 3,321 cases of death from all causes 54·3 years.

It is not stated whether any, or all of, the above-mentioned deaths from heart disease took place in proposers who had symptoms of such disease at the time of assuring.

These very interesting figures do not mean that the average age at death from those forms of heart disease which are likely to be met with in insurance work is 59·3 or 62·79 or 65·7 years, and that cases with heart disease are better lives than cases without. If the heart disease were present at the time of entry it must have been only of a trivial nature, and in people in whom there was every prospect of the weakness being nursed and looked after with the greatest care. Moreover there is no record of the average age at death of all the cases of heart disease which must have been rejected at the time of proposal. There is the further point, that many of the certificates of death were filled in vaguely as heart disease which may have been done to cover want of knowledge of the primary, or true, cause of death, and many of the cases which give the high age at death were syncope, senile or fatty degeneration, angina pectoris, and probably aortic lesions of an atheromatous nature, all of which are of a senile and degenerative nature, coming on late in

life in subjects who would show no indication of their having heart disease at time of entry.

But whatever be the true meaning of this high average age at death from "heart disease," the figures will not induce medical referees to accept cases with signs of valvular or myocardial changes at proposal-time unless in very exceptional circumstances.

Heart Disease and Life Assurance.—In estimating the value of a heart lesion for insurance purposes we must be guided by (1) the nature of the lesion, valvular, or myocardial; (2) the original cause of the lesion; (3) the duration of the lesion; (4) applicant's condition of life and habits; (5) age, and (6) sex.

1. **Nature of the Lesion. Valvular Disease.**—*Aortic incompetence* in any shape or form, with its great tendency to cause syncope is unacceptable at any premium.

Aortic stenosis.—It is conceivable that a slight roughening of the aortic valve which has been present from an attack of rheumatic endocarditis many years previously, and which produces a systolic murmur, might be acceptable with some addition to the premium. Such a lesion would have to be so slight as not to have caused hypertrophy of the left ventricle; it must be known to have been present for some years unaltered or to have improved, as is the case occasionally; and it must be unaccom-

panied by any regurgitation. The second sound must be unaccentuated and the life in all other respects good. Failing any of these conditions aortic stenosis is unacceptable for insurance purposes.

Any obstructive murmur due to atheromatous degeneration is bad.

Mitral Incompetence and *Mitral Obstruction* are both undesirable for insurance purposes, but under certain conditions proposers with mitral disease may be accepted with additions to the premium.

Condition of the Muscle of the Heart.—Muscle failure, or want of compensation, is the condition of more prognostic value in cardiac disease. If the heart muscle has responded to the strain of the extra work which is always imposed on it by a defective valve, and has increased in amount so that it can carry on the circulation efficiently the case may have an insurable value. This holds good more when there is simple hypertrophy present than when dilatation exists as well. In such favourable cases the beats will be regular, and of normal rate. Where there is dilatation without adequate compensatory development of the muscle, and quickened irregular action of the heart the outlook is bad. Hence the need of careful investigation into the state of the cardiac muscle. The most valuable signs in the differential diagnosis of these two conditions have been referred to under palpa-

tion and percussion. The auscultatory evidence is also valuable, as murmurs occur only when there is dilatation of the valve orifice (apart from valve curtain lesions) which is not present in pure hypertrophy. Evidence of back-pressure must also be sought for in the form of pulmonary congestion, fulness or pulsation in the jugular veins, enlargement of the liver and œdema over the shin bones, but it will be very unlikely for such cases to be met with in insurance work. They would be manifestly ill.

Fatty degeneration is probably met with in the senile heart, when incompetence is not present, but irregularity of rhythm and feebleness of beat suggest the seriousness of the lesion.

A fatty infiltration will have to be thought of in very stout people with feeble circulation or weak heart sounds.

2. **Original Cause of the Lesion**—(*a*) *Rheumatism* or one of its allied conditions, chorea, scarlet fever and growing pains, is the most frequent cause of *mitral* disease met with in adult life, and the lesion in these cases is generally obstructive. Aortic disease may be caused as well by rheumatic endocarditis but not so commonly. The valvular lesions which result from rheumatic endocarditis tend to remain stationary when once the acute stage has passed off, especially if adult age be attained; but there is always the danger

that the myocardial changes which accompany valvular disease will result in circulatory failure if any extra work be thrown upon the heart by intercurrent illness, or by some unusual exertion on the part of the subject of the disease.

Endocarditis may also accompany acute febrile diseases but this does not often happen.

(*b*) *Alcoholic excess* generally leads to muscle failure and incompetency of the mitral valve from dilatation of its circular muscular fibres. There is, as a rule, no sclerosing or narrowing of the valve orifice in these cases. A history or signs of alcoholic abuse will generally be forthcoming.

(*c*) *Other Causes*, lead poisoning, constant muscular strain, chronic nephritis, gout, syphilis, arterio-sclerosis may set up a slow sclerosing process of the valve curtains, especially of the aortic orifice, and lead to incompetence of the valve at different periods of adult life. Syphilis may excite the development of arterio-sclerosis and consequent aneurysm or aortic disease early in life, it may be as soon as the early thirties. The lesion set up by these conditions is of a degenerative nature and therefore most serious, hence the importance of correctly ascertaining the primary disease.

Gout, senile arterio-sclerosis and atheroma are among the degenerative developments of old age, actual or premature.

3. **Duration of Heart Lesion.**—A previous history of a rheumatic process or acute febrile poison in early life is of great importance, because no case of mitral disease in adult life has any value for insurance purposes unless it has such an origin dating from several years previously, or better still from childhood.

4. **The Extent of a Valvular Lesion** is sometimes difficult to judge—a fact I have insisted on in Section I. The loudness or extent of conductivity of a murmur is no reliable criterion of the amount of regurgitation. But wherever there is muscle failure and cardiac dilatation, with quick irregular pulse, and back-pressure signs in the pulmonary and systemic circulations the lesion is probably extensive.

With a slight lesion there will be no sign of muscle failure; but there will be a heart of normal size, a good and regular pulse, no systemic back-pressure, and a history of an unchanged or improving murmur of long duration. It is not at all uncommon to find a more or less loud, often musical, mitral murmur, or to find signs of mitral stenosis in a person of supposed, and apparently, good health, and many observers have met with cases in which murmurs improve materially or disappear in adult life.

Whilst a valvular lesion resulting from endocarditis of rheumatic or exanthematous origin several years

previously, and with no relapses, tends to remain stationary, the secondary effects of such a lesion *on the myocardium* may manifest themselves at any time from increased stress and strain of the valves through intercurrent disease, exertion or alcoholic habits. And therefore it is all important in estimating prospects of life in a case of stationary valvular lesion to know the applicant's surroundings, position in life and habits of eating and drinking.

5. **Applicant's Circumstances and Habits.**— If a person is in easy circumstances, can, and will, handle his creaking door with every care, lives a healthy quiet life, eats and drinks with great moderation, he is much more eligible for insurance purposes than is a man who has to work hard, to do a good deal of walking involving the catching of trains, who is not able to nurse himself and who drinks and eats immoderately.

6. The **age** also is an important point. An applicant in the thirties is much better than one above or below this decade of life, for in the former instance the period of decline of tissue will add to the danger of his disease, whilst in an applicant below 30 there is less certainty as to the latency of the disease. In all these instances it is assumed that the mischief has been set up in childhood or early adolescence. A valvular lesion developing after

thirty is less likely to improve than one of earlier appearance.

7. The **Sex** has some influence also on the prognosis. If a woman is still bearing children a heart lesion is more serious than if she will not have this additional strain on her system. A woman in good circumstances would be able to take better care of a heart lesion than a man would, as she would not run so many risks of over-exertion or sudden strain.

Sir R. Douglas Powell has put very clearly the principles which guide him in estimating the value of heart disease for insurance. "The first principle of safety in assuring all cases of decided valvular defect is to reckon off a number of years from the life corresponding with the natural period of degeneration, that is, the period when the reserve powers of muscular repair over waste have become a diminishing quantity. The last twelve or fifteen years could thus be withdrawn from the normal term of such lives, making them for an applicant aged 30 terminable at 56. The next point is to consider on the merits of each case whether the heart will hold good up to this period of degeneration, when we might naturally expect its compensatory powers to begin to fail. Then further contingencies in the way of overstrain, fresh rheumatism, ulcerative

complications and any intercurrent acute disease in other organs may arise and must be dealt with."

Two typical cases of mitral disease in persons 30 years old, in which the disease dated back in each case from acute rheumatism five years before, are taken as illustrations. In the one case the murmur is prolonged, obscuring the first sound of the heart, the cardiac dullness is extended, the action of the heart laboured, whilst the pulse is small and perhaps irregular. This first case according to the means of judging expectation of life mentioned above is hopeless for insurance. In the other case the murmur is short, superadded to a fairly well defined first sound, the hypertrophy moderate, and the heart's action steady, whilst the pulse is full. Here there has been a five years' interval without fresh rheumatism and the damage to the valve is moderate and measurable and well compensated for. If the family history show good vitality and the patient be a careful-living man, engaged in quiet healthy pursuits, there is good reason to be satisfied with the margin calculated for the degeneration period.

It will therefore be seen that it is very difficult to recommend any case of heart disease for insurance, and certainly no policy which matures beyond 50 years of age should be issued.

Arterio-sclerosis. — High vascular tension, thickened and degenerated arterial walls, cardiac hypertrophy, polyuria with a trace of albumen, form the main symptoms of the condition known as arterio-sclerosis, which is not uncommonly met with in adult life. This group of symptoms is similar to that of primary granular kidney, but the cardio-vascular sclerosis may be the primary disease resulting from age, wear and tear, chronic intoxications as from alcohol, lead and gout, syphilis and over-eating. It frequently develops in early adult life in syphilitics, and the danger of apoplexy alone is very great.

In insurance proposals refuse gouty or rheumatic subjects with sclerosed arteries, hypertrophy of the heart and accentuation of the second aortic sound, and pale abundant urine of low specific gravity. Refuse syphilitic subjects with arteries beginning to sclerose and with family history of arterio-sclerosis.

Accept for limited terms, according to their age, subjects with slight hardness of the arteries, with no family or personal history of joint or infectious disease, without cardiac hypertrophy and accentuation of the aortic second sound, who do not smoke or take alcohol to excess, and whose profession does not expose them to overwork or to customs prejudicial to health. (Mahillon.)

Angina Pectoris and Pseudo-angina.—Any history of anginal or pseudo-anginal attacks, that is severe pain in the chest when walking, is most serious and debars from insurance. Sometimes the pains are due to other than cardiac causes, but the difficulty in absolutely eliminating heart affection is very great and serious mistakes leading to heavy insurance loss are very easily made.

Not uncommonly there is distinct evidence of aortic valvular change, generally of incompetent nature, associated with a history of anginal pains over the heart and shooting up the neck and down the arms.

There is also the possibility of aneurysm of the arch of the aorta being the primary cause of these pains, and signs of this condition must be carefully sought for.

Aneurysm of any of the vessels makes a case uninsurable (*see under* Syphilis).

Acute Rheumatism.—Where there has been a history of acute rheumatism and no traces of it can be found two years at least after the illness, the life, provided it is otherwise good, can be accepted at ordinary rates. If there have been two or more attacks it is more necessary to wait for two or three years after the subsidence of the last attack before accepting the life. A family history of joint disease is rather against a proposer who has

had rheumatism, as the chronic form of rheumatism is very likely to develop.

The earlier in life the rheumatism has occurred, the more likelihood is there to be heart complication, and therefore a longer delay is necessary before issuing policies in early life than in adult life.

Chorea in childhood is very frequently associated with endocarditis, and must be dealt with as if it had been acute rheumatism.

Ulcerative Endocarditis.—It is not very likely that a proposal will contain such a history, but in view of the recent achievements of opsonins it is becoming possible if not probable. But no such case could be accepted at any rate, as there will certainly be some valvular lesion as well as a tendency to relapse.

Tobacco Poisoning.—Whilst it is very rare indeed, if it ever happens at all, for tobacco to cause death, no medical referee likes to pass a life with a quick, irregular, intermittent tobacco heart. Such a proposal should be postponed until the toxic symptoms have passed off, as they will do in a few weeks on discontinuance of smoking, and the life if otherwise good can be accepted at ordinary rates. But there is no guarantee that the bad habit and the heart condition will not return after the proposal has been completed. The proposer should be warned of the effect which the tobacco has on his heart. One risk

in excessive smokers is that they may also take too much alcohol, as nicotine depresses the system and invites counter stimulation. German observers also state that tobacco in excess causes cardio-vascular disease.

Tea and Coffee poisoning is rarely met with in insurance work. Any case should be dealt with like tobacco poisoning.

Varicose Veins, when not due to pressure, are no bar to insurance in the better classes, especially if the diseased veins be taken care of and an elastic support be worn. If they are very severe insurance should be deferred until after operation. In proposers who have much physical labour or standing about in the course of their work an operation should be advised before acceptance. There is always a danger of rupture or phlebitis.

Varicose ulcers are dangerous.

Varicocele itself does not constitute a danger, especially if a suspensory bandage be worn. It may result from constipation, sedentary life or masturbation. If impotency is present in a proposer with a varicocele the medical examiner will most probably be told of it, as young men with such disturbance are generally very communicative to a doctor about their troubles. Moritz (St. Petersburg) states that varicocele and impotency in a person must make one suspicious of suicidal tendency.

CHAPTER XXV

BLOOD

Anæmia.—Many young male proposers who follow indoor occupations in mercantile houses are pale, but have no signs of disease unless it be a faint trace of albumen in the urine revealed by the heat, but not by the nitric acid test. This albumen is probably extra-renal, and due to mild catarrh of the urethra and bladder, for I have never found any casts in the many specimens which I have examined microscopically. It is always advisable to examine another specimen of urine when, as often as not, no albumen will be present. Such proposals can be accepted at ordinary rates.

When anæmia occurs as a disease, other symptoms, as breathlessness, palpitation, hæmic murmurs, etc., will be present. Such applicants should be deferred for treatment.

Anæmia, or pallor, in elderly people, must suggest some serious disease, especially cancer, or failure of digestion and absorption of food, and requires very careful consideration. It is always advisable

if any doubt arises as to the health to defer the case for a few months.

Chlorosis might be present in a proposer, and if so the insurance must be deferred.

Primary and Secondary Anæmias.—None of the serious diseases in which blood changes are a marked feature, are eligible for assurance.

CHAPTER XXVI

ALIMENTARY SYSTEM

Tongue.—Any case in which *fissures*, *cracks*, *ulcers*, or *warts* appear on the tongue in an adult which are not due to a manifest and removable cause should be refused. It is impossible to tell when a supposed simple ulcer or sore will not become cancerous. Even if the lesion is due to some source of irritation, as a tooth, the insurance must be deferred until the sore has healed without leaving any trace behind.

Proposers with *leukoplakia* or *icthyosis* should also be refused, as these cases not only are often of syphilitic origin, but also they may turn into cancer.

Gaucher regards all cases of *lingual leukoplakia* as syphilitic in origin, and says that if they be not treated, they all end in cancer.

Hæmorrhage from the gums and mouth, resulting from blood diseases, is a very serious symptom. It will rarely be met with from these causes in insurance work. If due to spongy gums round carious teeth, it has no pathological importance.

Indigestion, in its various forms, if primary and of the usual mild and transient nature, is of no importance. It may be the cause of intermittent action of the heart. When there is a history of it, however, it must be definitely ascertained whether it is primary and trivial or secondary to some severe disease as phthisis, ulcer, cancer, or Addison's disease, etc., or to alcohol. In the latter instance the primary disease would forbid insurance.

Stomach.—Any chronic gastritis, ulceration, cancer, or dilatation or displacement of the organ would debar from assurance.

A history of a previous attack of acute gastritis, if not due to alcohol, need not adversely affect a proposal.

A previous attack of gastric ulcer would almost certainly debar from insurance, for recurrences are common, and the ulcer is sometimes followed by cancer.

Vomiting, if persistent or habitual, would, whatever its cause, debar from insurance. Ordinary bilious vomiting attacks recurring at intervals of a few months have no pathological significance.

The vomiting of pregnancy must not be overlooked.

Hæmatemesis is generally caused by grave lesions either in the stomach, or liver. I have seen it in peri-appendicular adhesions, and it may arise from

blood diseases, recurring from time to time in so-called splenic anæmia.

Any proposer giving a history of hæmatemesis would be ineligible for assurance.

Operations on the Stomach are only undertaken for serious disease, and a history of such, whether on the stomach itself, or for the formation of a gastro-intestinal anastomosis would prohibit insurance.

Jaundice present at the time of examination requires postponement of the proposal, and inquiry and examination into its cause must be made.

A history of catarrhal jaundice in the past is of no importance, especially in young proposers. If it has occurred in older people the possibility of gall stones or malignant disease must be borne in mind.

Liver.—Any disease of the liver which can be recognized by examination, or by present or past symptoms, would debar from insurance.

Splenic Enlargement only occurs in serious diseases and, if such is present, insurance would be impossible. The only possible exception to this might be in malaria, but only when the spleen has regained its normal size and there has been no attack for some years.

Intestinal Diseases.—Temporary disturbances, such as simple enteritis or dysentery have no adverse

bearing on a policy if there has been only one attack and no evil consequences left behind.

Some people have two or three evacuations of the bowels daily, and are otherwise in perfect health. Others have the bowels opened after any considerable meal and are none the worse for it. When there is a history of three or four evacuations of the bowels in the morning before noon, Graves' disease must be suspected and, if present, the case is uninsurable.

Any form of *chronic diarrhœa, colitis*, or *dysentery* would debar from insurance. Such conditions are now and then met with in people who have lived in tropical countries.

Ordinary constipation is unimportant, but any marked history of obstinate bowels or of fæcal obstruction must be dealt with very cautiously, especially in elderly people.

Mucous Colitis.—True mucous colitis, that is, a secretion neurosis of the colon which results in the formation and subsequent passage of long mucous shreds or tubes, is not uncommon, especially in women of nervous type. The pain which accompanies it may be somewhat like that of biliary colic, as in a patient of my own ; it may also simulate that of appendicitis. The disease is liable to recur, but rarely causes serious trouble, though death has occurred suddenly in three cases (Herring-

ham, Osler). If the proposer were otherwise unexceptionable the life might be accepted, but if there is any unsatisfactory feature it had better be declined.

Parasites.—A history of the ordinary intestinal tape worms would be of no importance. Anchylostomum duodenale might be present in proposers associated with coal-mine working, and would debar from insurance, the anæmia caused by the parasite being serious. A history of previous presence of the worm with complete recovery of the general health would not prejudice a proposal.

Hydatid disease is much more serious, and would debar from insurance. Even a previous history would render a proposal very risky.

Operations on the Intestines are only undertaken for serious disease, and a history of such would probably debar from insurance.

Appendicitis.—Recurrent attacks of appendicitis are very risky. Any attack may be of a very severe type and liable to cause death, and therefore an applicant subject to such should be advised to have his appendix removed and the proposal should be deferred for this purpose. If he will not be operated on, refuse the proposal.

A proposer with a history of one attack of simple appendicitis over two, or better three, years previously, with no recurrence of symptoms of any

trouble in the right iliac region, and with nothing abnormal on palpation, might be accepted as an ordinary risk if he be otherwise unexceptionable.

If there has been more than one attack defer for a longer time than three years with freedom during the period from all symptoms. The family history is of value, especially in young subjects.

After the successful removal of the appendix by operation in an interval of quiescence after one or more attacks a proposer, otherwise first class, can be accepted at ordinary rates within a few weeks or months of the operation. When the operation was performed during an attack, if there has been apparent cure and no after-symptoms, the case can be accepted in three or four months after the operation at ordinary rates. If a collection of pus, whether peri-appendicular or intra-peritoneal, has been drained, delay acceptance for eighteen to twenty-four months, by which time, all other conditions being favourable, the proposal can be accepted without addition. A family history of tuberculosis adds materially to the danger.

Biliary Colic.—No policy should be issued to a proposer who has had an attack of gall stones until three years have elapsed since the attack, during which time there has been good health. If two attacks have occurred, the interval should be five years. If the proposer is otherwise first

class he may be accepted at ordinary rates. If he has suffered from indigestion or "biliousness" in the interval a longer delay should be required, or else refusal of the policy is advisable.

Even if operation for gall stones has been performed there is no guarantee that attacks will not recur, and such lives are decidedly risky.

Lead Colic makes a proposal undesirable, even if it was some years previously. Any confirmatory symptoms of plumbism, as a blue line on the gums, or albuminuria, would make a proposal unacceptable.

Hæmorrhoids.—With a history of hæmorrhoids it must be ascertained whether the condition was independent of any serious lesion, and just the result of constipation and sedentary life, or whether it was symptomatic of important disease in other organs, especially in the liver. Hæmorrhoids not uncommonly occur in plethoric people who live well without there being any constipation or liver disease. In these cases they are more of the internal or bleeding variety and act as a safety valve to a congested portal system.

Simple hæmorrhoidal tumours need not prejudice the acceptance of a case for insurance, but if they are troublesome it is best to defer the insurance until after operation.

Bleeding piles in an otherwise good life need not

add to the premium, but it is safer to have them removed before issuing the policy.

Malignant Growths in the **Rectum** would debar from insurance. If a *simple polypus* exists the proposal must be deferred until after removal, when after a due lapse of time with no return of symptoms a proposal might be issued to an otherwise sound life.

CHAPTER XXVII

HERNIA

Hernia is not a very prominent cause of death amongst the assured, but still it is sufficiently important to require careful consideration when found in a proposer. In one large office in a total of 44,985 deaths in males, strangulated hernia was recorded 59 times or in ·13 per cent. of all the male deaths ; while in 1,540 deaths of females there were 5 cases, or ·33 per cent., from the same cause. From the experiences of other offices with a total of 32,000 deaths the death rate from hernia was ·17 per cent. Most of the deaths take place in old age, and an office rarely makes a loss from hernia.

From figures obtained from the London hospitals and the London Truss Society it was found that of 21,116 ruptured persons, 117 died of strangulated hernia (·2 per cent.). The Registrar-General's reports extending over a period of 20 years give the death rate from strangulated hernia at an average of 43·5 per million of the living. But it

must be borne in mind that insurance proposals are mostly issued to picked subjects in whom the risks of strangulated hernia are much less than for the general population.

The occupation of the applicant for insurance is an important point. Men who have a good deal of stooping to do, or who have much muscular exertion in the course of their work, have more risks from hernia of any form than have the leisured classes.

Inguinal hernia is the least dangerous for insurance purposes. Its presence will rarely be overlooked, and the rupture can be controlled by a good truss. If it is easily reducible and if a good truss be worn, which is essential, the life can be accepted at ordinary rates.

The risks from *hernia with an undescended testis* are too great to permit of acceptance at any premium. When there is a piece of irreducible omentum a considerable extra should be added (*Lucas*).

If a radical cure has been performed, six months should be allowed to pass before acceptance of the life, in order to see that the operation has been successful.

Femoral hernia is liable to occur in men whose occupation requires a good deal of stooping. It may very easily be overlooked, especially in women. When present, it is more difficult to control and

more liable to strangulation than is an inguinal hernia.

Cases of femoral hernia should only be accepted for insurance with an extra of five years at least.

If a radical cure be performed and a proper truss be then worn to prevent the re-formation of a sac, the case may be accepted at ordinary rates.

Umbilical Herniæ are also dangerous, as they are apt to be neglected and to increase in size insidiously. Trusses do not keep them up well. When present they are also frequently associated with obesity.

No case should be accepted without a distinct loading, but it is wiser to postpone acceptance until a suitable operation has been performed.

Ventral hernia is only occasionally seen in insurance proposers, but may be met with more frequently now that laparotomy is performed much more often than it was twenty years ago. A ventral hernia is very liable to occur through a cicatrix of an abdominal incision. They are dangerous cases, from the difficulty in fitting good trusses to them, or in dealing with the cicatrix, and they ought to be refused or accepted only with distinct loading.

A *double hernia* of any variety adds to the risk.

Hernia and Insurance.—The custom of most offices is to accept cases of inguinal and

femoral hernia in which proper trusses are worn at ordinary rates. Some offices accept only on condition that the truss be worn always unless the person be in bed; it may also be temporarily removed when necessary, as for bathing. But each case of hernia should be judged on its merits, and a careful examination of the rupture and the rings must be made and reported on.

Some offices go a step further and have a hernia clause which protects them from death in any way connected with the hernia; such a clause is offered instead of advising an operation before the insurance is completed. Then if the policy be taken out the insured could be operated on or not, and if he should be operated on and die from the operation the company would have no liability. A hernia clause is also offered to elderly persons of about 60, at which age they will not care to be operated on.

The objection to a hernia or any limiting clause is that insurances are so often taken out as security against loans, and policies with any such restricting clause would be valueless for these purposes.

CHAPTER XXVIII

URINARY ORGANS

Nephritis.—No case of acute or chronic nephritis, however mild, is eligible for assurance.

No case of previous nephritis with residual albuminuria, however slight, is eligible for assurance.

Acute nephritis in the past, which was cured some years previously, leaving no traces behind in the form of albumen or casts, may be accepted at ordinary rates in a sound proposer of good family history and habits.

A tendency to chronic interstitial nephritis with death at a comparatively early age runs in certain families. This form of nephritis is also liable to develop if there is hereditary tendency to arterial degeneration.

A **Floating Kidney** need not debar from insurance if there are no complications, pressure symptoms or twisting of the pedicle causing Dietl's crises.

Proposers, with history of **Tuberculous pyelitis** or **Hydronephrosis** are ineligible for insurance.

Casts in Urine.—Blood, pus, fatty or amyloid casts in urine would prohibit insurance. Epithelial and hyaline casts would also prohibit insurance if there was albumen in the urine passed after a night in bed.

Cylindroids have probably no pathological significance if there are no true casts present as well.

The significance of a few hyaline and epithelial casts (without any fat granules) in urine in which albumen is absent after a night's rest in bed, and only present when the proposer is up and about, is difficult to determine at present. No company would take a proposal with such casts in an albuminous urine, although some observers consider that their presence need not signify inflammatory changes in the kidneys. The question has already been referred to under albuminuria.

Renal Colic.—A history of one attack of renal colic need not adversely influence insurance if the attack took place at least three years previously, and there has been no recurrence and nothing abnormal noticed with the urine in the interval, provided that the life be otherwise first class. A history of mineral water treatment further improves the outlook. If there were two attacks, an interval of five years should pass under similar good conditions before the life be insured.

Not sufficient evidence is forthcoming to decide on the risks of cases of renal calculi which have been operated on.

If the life be not first class, or the history after the attack not so good, further probation time, or else refusal of the policy is advisable.

Abnormalities of the Urine.— *Hœmoglobinuria.*—The condition of the blood which leads to paroxysmal hæmolysis and hæmoglobinuria is not known definitely yet, but although the disease is rarely, if ever, fatal it would be unwise to accept a proposer with it for assurance.

Hæmaturia or pyuria if present in a proposer would forbid assurance.

Uric Acid in the urine, unless associated with renal colic, need not prejudice a proposal.

Cystinuria occurs as the result of some defect of metabolism which is frequently hereditary. Subjects of it generally live to a good age, as the family history of cases shows. But they would be uncertain risks to undertake, not so much from the condition which causes the formation of cystin, but from the risks due to the formation of calculi.

Phosphates in urines in small amount mean nothing abnormal. They may make the urine cloudy in the bladder. They occur in excess in dyspeptic, slight nervous conditions, and in insurance work have no bad significance.

Bladder.—*Enlarged Prostate* if suspected from the age of the patient and symptoms of bladder irritation, requires refusal of the proposal. If a proposal be made after successful enucleation of the prostate in an otherwise good life, acceptance might be possible for a short term of years.

Cystitis.—No case with any cystitis present would be insurable. If there is a history of a previous attack from chill or secondary to gonorrhœa and of short duration, which has been quite cured and free from symptoms for some years, the case in an otherwise unexceptionable life may be accepted at ordinary rates.

Vesical Calculi would of course render a life uninsurable if present. Even if an operation has been successfully performed for a calculus the life is not desirable owing to the tendency to recurrence of the condition; but if the operation took place some two or three years previously and the proposer has been in good health since, and is found to be sound and to have good habits and family history he might be accepted for an endowment policy terminable not later than 60.

Parasites.—Bilharziosis is met with in England more commonly than it used to be a few years ago. The presence of the parasite or history of its presence would debar from insurance.

Stricture of the Urethra.—French examiners

look upon urethral stricture as not calling for rejection as a rule, surgical treatment having made so much progress in recent years.

Simple inflammatory or congestive strictures due to gonorrhœa are curable with proper treatment, when they can be accepted for assurance at ordinary rates.

Traumatic strictures ought to be refused if they have not been operated on, or are not examined a long time after the operation; or the decision may be postponed. No case should be accepted in which any surgical operation is necessary.

Where a *stricture is complicated* by urinary abscess, formation of fibrous tissue, fistula, etc., the proposal must be adjourned until the complication is cured.

If there is any doubt of the presence of a stricture an expert opinion should be obtained.

CHAPTER XXIX

ALBUMINURIA.

Nephritis.—In acute or chronic inflammation of the kidneys, a characteristic feature is that the albumen is present in the urine which is secreted at all times of the day and night, whether the subject of it is up and about, or in bed. The amount of the albumen has no diagnostic import, though it frequently is very great and more than in the other varieties of albuminuria. On the other hand, there may be but the very faintest trace of albumen, as in granular kidney. The specific gravity of the urine is frequently very low, both when there is much, or only a little, albumen in it, and there may be a marked increase in quantity. The microscopic examination of the deposit will give distinct evidence of renal disease by the presence of casts in the majority of cases; but casts may not be found in cases of granular kidney.

There will also be evidence obtainable from the other organs of the body, especially the heart and blood vessels, and from the age of the proposer,

which will help to establish the nature of this form of albuminuria.

Congestion.—Albuminuria secondary to disease of the heart is not very likely to be met with in insurance work.

Albuminuria in the Apparently Healthy.—Not at all uncommonly the medical examiner is surprised to find albumen, in more or less amount, where he did not expect it, hence one of the names given to the condition "albuminuria in the apparently healthy." The subjects of this form of albuminuria are mostly below 25 or 30, and are quite unaware that there is anything wrong with them. If the urine be examined microscopically, in the majority of cases no renal casts are to be found; occasionally a few hyaline casts are present, but there are no evidences elsewhere of disease. The specific gravity of the urine is generally normal, and there is no increase in amount.

Several varieties of this form of albuminuria are described, but the cause of all is a debatable matter.

1. *Cyclical albuminuria* is the term given to those cases in which the urine is absent in the morning, increases in amount to the early afternoon, then declines and is absent in the evening.

2. *Postural or orthostatic albuminuria* is the condition in which albumen appears whilst the subject of it is in the erect posture and keeps away whilst he is lying down.

3. *Dietetic* or *alimentary albuminuria* occurs generally after large meals of proteid foods, and especially of eggs, but it may follow any meal, however light the food be.

4. *Athletes' albuminuria* is met with after severe muscular exertion, in healthy men. This has been abundantly proved by Collier who examined the urine in 156 Oxford rowing men after races and found albumen in 130. In half of the total number there was a very definite amount, and the harder the race the more the albumen. No albumen was found after rest in bed or after a meal.

5. Albuminuria after *cold baths*, generally with people who get chilly extremities after the bath.

5. *Albuminuria of adolescents* occurs in the later years of youth, and generally in subjects of feeble circulation with considerable excess of oxalates in the urine.

6. In *functional albuminuria* the albumen is more persistent in its appearance over some period of time, but is absent altogether also for long periods. Such a condition is often hereditary.

7. *Hœmatogenous albuminuria.* In some cases of these varieties of albuminuria the blood has been found to have a diminished coagulability, and the albumen disappears after treatment with calcium salts, especially the lactate.

8. ***Residual albuminuria*** is the term given to

those cases in which traces of albumen persist for many years after an attack of scarlet fever. In many of these cases there are to be found a few casts of epithelial nature, which show that there is still some lesion left from the original scarlatinal nephritis.

Dukes has paid special attention to albuminuria in schoolboys and girls over a period of thirty years and has had almost unique opportunities of re-examining his cases in later life. The ages of the subjects when first under his observation would be from 13 to 19 years, and he has seen hundreds of cases. At one time he thought badly of the condition, but further experience leads him to the firm conviction, that when it is recognized and properly treated there is little likelihood of the albuminuria proving the precursor of organic disease of the kidneys, even when the duration has been many years. He has re-examined many of his patients in later years on their revisiting their old school, and in only one instance was any albumen present, and this was when the re-examination was made shortly after the boy had left school. He made no microscopic examination of the urine unfortunately, or his results would have been even more valuable. All his cases of albuminuria were met with in association with cardio-vascular changes, or diffuse slapping cardiac impulse, quick pulse,

and high tension in some cases. Faints and attacks suggestive of petit mal were present in some of his cases.

He found that 16·27 per cent. of his school-children when examined at the age of 13 to 14 had albumen in the urine.

These cases associated with circulatory disturbances can hardly be called albuminuria in the apparently healthy. Apart from their physical signs, they are manifestly not healthy, and they complain of never feeling well and always tired.

It may be pointed out that albuminuria in young people from 13 to 18 years of age may be different in nature and significance from that met with at ages over 25, and these latter constitute by far the greater number of applicants for insurance.

Whilst the above varieties of albuminuria may, and do often, occur in the apparently healthy, they are not uncommonly found in anæmic, unhealthy young people of either sex who complain of headache, dyspepsia, want of stamina, faintings and general debility. Calcium oxalate in excess and uric acid crystals are not infrequently found accompanying the albumen.

Value of Cases of Albuminuria for Insurance.—1. When of *inflammatory* or *congestive* origin the case is unacceptable at any rate of premium.

2. When one of the "*physiological*" types occur in

an otherwise healthy person no company will accept the case even if no casts have been found, as it is impossible to say how many, or which of them, will improve or develop into true nephritis albuminuria. Some observers have, however, recorded cases with hyaline casts present which they have watched over a length of years without any more serious lesion developing, but there are no figures of any value for actuarial calculations.

It is best in these cases to advise the applicant to put himself under the care of a medical man or to come up again at intervals over a few weeks or months for further examination of the urine. If the albumen vanishes and remains absent for some months, and especially if no casts have been found, the cases have an insurable value which varies with different offices.

Collier, who has made a special study of albuminuria after exertion in healthy men, thinks such proposers for insurance between 18 and 30 may safely be accepted at ordinary rates. Morgan some years ago followed up the medical history of 294 University Boat-Race men and came to the conclusion that their chances of long life were much better than those of the average man.

3. If any signs of *debility* accompany the albuminuria the proposal is unacceptable at any rate of premium.

Stokvis paid considerable attention to the insurability of proposers with albuminuria. His conclusions are, that :—

1. Many cases of albuminuria called functional are eligible for assurance.
2. Their degree of eligibility does not depend on the permanent or transitory character of the albuminuria but on the morbid symptoms which accompany it.
3. Albuminuria of renal orgin is unacceptable.
4. In each case a microscopic examination of the urine is necessary to separate the renal from extra-renal cases.

Extra-renal Albuminuria. — Albumen derived from catarrhal conditions of the urethra of other than gonorrhœal origin is generally small in amount and of no pathological significance if the proposer be otherwise perfectly healthy.

Catarrh of the bladder would be very difficult to diagnose short of catheterizing the ureters, a procedure which is not at present, at any rate, expected of the medical referee.

Probably the only evidence of use here is the microscrope and the presence of pus cells and bladder epithelium.

Pus present will call for delay in acceptance and thorough investigation of the causes of its appearance in the urine.

CHAPTER XXX

DIABETES MELLITUS AND GLYCOSURIA

Diabetes Mellitus and Glycosuria. — The term glycosuria is often used indiscriminately for cases ranging from true diabetes mellitus to those with merely an occasional trace of sugar. This nomenclature is misleading and therefore, in the subsequent pages, the former ailment will be referred to under its distinctive name, whilst the broader term glycosuria will be used for those cases in which the sugar is slight in amount or transitory in nature.

Diabetes Mellitus.—Proposers with this serious ailment are ineligible for assurance at any rate of premium or for any period of time.

Glycosuria.—Small amounts or even traces of sugar frequently appear regularly or transiently in the urine of otherwise healthy subjects. The question of the value of such proposers for insurance is most important and requires full consideration.

Careful observations seem to show that a healthy man's capacity for dealing with carbohydrate foods

has certain limits, and that if large amounts of these foods be taken their proper digestion gets beyond the power of the system and some sugar appears in the urine. Such a physiological capacity is greatly lessened by certain conditions not understood, but which are often associated with gout, alcohol and obesity, and which are likely to develop into true diabetes. It may also be lessened in an apparently healthy individual from some temporary and perhaps trivial reason, but Barringer and Roger state that only mere traces of glucose appear in the urine of healthy persons after they have taken the same large doses of cane sugar or glucose as those which produce more marked glycosuria in the former group of cases.

Cases occur in which sugar is found in one examination and never again, in spite of careful and skilled observation extending over a period of some weeks and with no restriction in diet. Are such eligible for assurance ?

Williamson suggests that in these cases the proposer should be advised to take a good meal rich in starches and sugars, including fruits, and with a glass of sweet wine, and the urine passed after the meal examined. Barringer and Roger give 100 grams of glucose or grape sugar as a test. If no sugar be found, it is probable that there was some passing condition which caused its presence the once, and

the life might be accepted at ordinary rates. But it must be borne in mind that in spite of such careful investigation as the above, the sugar may have appeared on previous occasions and may appear again without its presence being suspected.

On the other hand, if sugar appears in a urine in spite of most careful dieting, the proposal must be declined.

On two or three occasions I have found sugar in the urine of a proposer who has had champagne for lunch just before his examination, or after the good living of Christmas. On the other hand I have examined men after similar meals without finding any sugar. I therefore consider that the glycosuria is abnormal and that it must be dealt with very cautiously.

Subjects of that form of glycosuria which comes on after special foods as grapes, sweet wines, carbohydrates, but who are otherwise healthy, may prepare themselves for a call on a medical examiner by carefully dieting themselves before their visit. If they do this, and give no information about their disorder, there is no possibility of preventing their being accepted at ordinary rates, unless they have proposed before and been rejected on account of the sugar having been discovered by a medical referee. The system by which insurance companies co-operate for the prevention of fraud will then prevent any mistake. I know of a case in which slight glycosuria

came on only after one special meal in the day. This adult proposer, however, was absolutely honest, declared the condition and was accepted at ordinary rates. He died, after paying two or three premiums, from a primary pancreatic lesion, the possible development of which was hinted at by the temporary glycosuria.

Glycosuria is frequently met with in Jews, especially in elderly, stout females. It may last for years in mild or even severe degree, especially if care be taken about the diet.

A small amount of sugar in the urine means, *per se*, nothing, the importance of it depending entirely on the question, *Do cases of mild glycosuria turn to diabetes mellitus ?*

This question is analogous to that concerning the frequency of the development of nephritis after physiological albuminuria, and the answer to it is equally unsatisfactory. In the majority of cases mild, transient or permanent glycosuria persists unaltered for many years, and has no adverse effect on the life. But some do turn into the severe forms and shorten life. Thus Barringer and Roger studied carefully twenty cases in which glycosuria had been found unexpectedly at an insurance examination. At the end of five years 20 per cent. had become diabetic, 15 per cent. had become suspicious cases, and 10 per cent. somewhat suspicious. There is, how-

ever, no means of foretelling what each individual case will do.

If insurance companies made a practice of accepting all so-called cases of physiological glycosuria with some addition to the premium, they might not be losers in the end, for so many subjects of the condition live their expected duration of life. But if only supposed favourable cases be taken there is great risk of heavy losses being made.

Glycosuria when it occurs in the *obese* is, according to Hector Mackenzie, more dangerous for insurance purposes than when it occurs in spare people.

Family History is most important in estimating the value of a case with glycosuria for purposes of insurance. Williamson found a history of heredity in at least 13 per cent. of his hospital cases of diabetes mellitus, and he tells me that he has no doubt that in his private cases, in which the previous medical history is much more accurate, the percentage is higher than this. Schmitz found a hereditary predisposition in 47 per cent. of 2,115 diabetics. Therefore, any proposal from even an apparently healthy man with a history of parental glycosuria should be looked upon, especially in young people, with grave suspicion.

Glycosuria and Life Insurance.—In a proposal in which the urine is normal, but in which there is a history of death from diabetes in one parent and

one brother or sister, decline if the age of proposer is under thirty, add a heavy increase if between thirty and forty and give easier terms after the last age. The proposer to be perfectly sound. Decline every case of glycosuria which is not controlled by dietetic restrictions (H. Weber).

In my opinion, any case even of slight and occasional glycosuria, is most undesirable for insurance purposes. Where the condition is more persistent or the amount of sugar greater, the outlook is so much the worse.

But all offices do not agree on this point, and the examiner should state all necessary facts for the guidance of the actuary and head medical officer, and leave the ultimate decision to them.

CHAPTER XXXI

NERVOUS SYSTEM

Central Nervous System.—Organic Diseases of the central nervous system, as a whole, are so serious and run such a short course that proposers with any such complaint are, as a rule, ineligible for assurance.

It is also scarcely likely that any one who knows that he is suffering from an organic nervous disease would make a proposal, but as it has been pointed out on a previous page, supposed healthy men may come up for examination with serious organic disease developing and showing premonitory symptoms to a trained observer ; therefore, a very careful examination of the nervous system must be made in adults.

Hemiplegia after any cause forbids insurance.

Monoplegias resulting from *infantile paralysis* many years previously need not of themselves adversely affect a proposal if the applicant can lead a healthy life, and is otherwise eligible for insurance.

General Paralysis of the Insane, and *Locomotor*

Ataxia, the two most likely organic nervous diseases of central origin to require consideration have already been referred to under Syphilis (q.v.).

Functional Diseases of the central nervous system.

Neurasthenia or *nervous breakdown*.—Not uncommonly a proposer will give a history of having had neurasthenia for which he was ordered a few months' holiday. If he is a business man and was made ill by worry and over-work, the holiday would probably set him up in health again, and if he is examined some twelve months or more after return to business, has kept well during this time, is taking more care of himself, and is in thoroughly sound condition with good family history, there is no reason why he should not be accepted at ordinary rates. If he had no occupation when he broke down or has none at the time of the proposal, or if there be a family history of neurotic troubles, the proposal is risky and must be dealt with according to the history, mode of life and habits, and personal condition of each individual.

Hysteria in women may have to be dealt with in insurance work. Such a proposal would be very risky and best refused.

Peripheral Nervous System.—Various forms of neuritis have not uncommonly to be considered in insurance proposals.

Acute neuritis.—A history of a transient attack of inflammation of nerves arising from chill, strain, in rheumatic subjects, or following diphtheria, need not add to the premium of an insurance policy.

Chronic neuritis.—If the proposer be subject to a chronic neuritis, which most likely will affect the sciatic nerve, there are risks partly from the crippling which results from the disease and partly from the rheumatic or gouty constitution which induces it. No case in which the neuritis is marked is desirable for insurance purposes, but where it is slight and the proposer has a good family history, and is otherwise in good personal condition a policy may be issued on the endowment plan.

Alcoholic or lead neuritis would debar from insurance.

Paralysis of the facial nerve of sudden onset and transient duration is probably due simply to cold, and has no adverse effect on insurance. If it came on gradually and was associated with discharge from the ear, the ear disease is the dominant factor and the value for insurance would depend on the condition of the ear.

Tic douloureux debars from insurance. The pain is so severe that it sometimes leads to suicide and the risks of operation for excision of the Gasserian ganglion are great. The proposal might be considered if the Gasserian ganglion has been removed

some years previously, with good health afterwards and in a subject otherwise first class.

Writer's or Occupation Cramp is a troublesome condition. I have seen it once in a proposer. It need be no bar to insurance if the life be otherwise good.

Muscular System.—Primary diseases of the muscular system are uninsurable.

Migraine, Hemicrania, or **Sick Headache** is occasionally met with in the personal history of a proposer. It is frequently hereditary and may alternate in heredity with other neurotic conditions. Its true cause is not known, but some cases are probably due to slight errors of accommodation, which can be corrected by suitable glasses. It does not seem to shorten life, and tends to improve with age. In a healthy proposer it need be no bar to insurance.

Reflexes.—Knee-Jerk. — Whilst it is stated that the knee-jerk is occasionally *absent* in healthy individuals, its absence in insurance work generally means refusal of the proposal, and it certainly does so if there is a history of syphilis. When *diminished* the rest of the nervous system must be carefully examined. Any *difference* in the reaction *on the two sides* may be important evidence of general paralysis or organic nervous disease : whenever met with the case must be looked on with much sus-

picion and other signs of disease carefully sought for.

Increase of the knee-jerk is frequently an expression of an organic nervous lesion, but it is often met with in neuroses, or in nervous subjects. When it is increased other increased reflexes, cutaneous or tendinous, and other symptoms of nervous lesions must be carefully looked for and special inquiry made for a history of syphilis.

Pupil Reflex: *abolition* should cause refusal of the proposal. With pronounced *feebleness* other physical signs of nervous disease must be sought for; but it must be remembered that the briskness of the reflex depends a good deal on the brightness of the light used for its production. *Inequality of pupils* if real and marked is a bad sign, and probably indicative of general paralysis. Slight degrees are met with as congenital conditions. *Argyll-Robertson pupil* when present also means refusal.

Babinski's phenomenon should be looked for in possible disease of the nervous system. When present the proposal must be refused, for it means serious organic disease of the upper motor neurons.

Ankle clonus renders a proposal unacceptable.

CHAPTER XXXII

EAR

Ear.—*Tinnitus* or *buzzing in the ears* may mean nothing more than a plug of wax in the outer ear, but if it is associated with deafness, dizziness and vomiting the proposal should be postponed for observation.

Chronic deafness, due to nerve or drum lesions or to dry catarrh in a gouty constitution with no other ear symptom accompanying it is, apart from the risk of accidents, no bar to insurance. If the deafness is progressive the case may be different, but the cause of the deafness is the important point, not the deafness itself.

Bone lesions.—The most important diseases of the ear from any point of view are the bone lesions of the middle and inner ear. They generally cause purulent discharges which may go on for many years without anything happening, but it must be remembered that a secondary brain lesion, or a septic pneumonia or general septicæmia may develop suddenly and cause death in a few days, and it is

quite impossible to foretell which of these cases will remain harmless or turn harmful.

A *purulent discharge then is a bad sign*, although it is absolutely impossible to say, from the nature of it, what the case will do. A thin, fetid pus, especially with blood, but even without blood, in it is a most grave condition. Intermittent pain which may be referred to any part of the head and not be confined to the ear only adds to the seriousness of the outlook.

If it can be established that the discharge has really ceased, the outlook is the more favourable according to the length of time which has elapsed since the discharge was last noticed. Two years is the least limit to adopt, but serious bone lesions may remain latent over longer periods of time and then become active; but when the cessation of discharge has only happened within a few weeks or months there is no guarantee that the process which caused the otorrhœa has healed.

When an operation has relieved the discharge, if all is well about a year afterwards the case may safely be accepted at ordinary rates.

I know of one woman who had a varying, but generally slight, discharge from childhood which never troubled her, and who at sixty was suddenly seized with rigors and became semi-comatose. An operation was performed and it was found that a

large cholesteoma lay in immediate contact with the lateral sinus.

It certainly is the safest plan to have all cases of ear discharge or pain reported on by a specialist and many companies require this before accepting such applicants.

CHAPTER XXXIII

DEFORMITIES AND ABNORMALITES

Spinal Curvature.—The insurance value of a case of spinal curvature depends on two conditions :—

1. The cause of the disease, tuberculous or non-tuberculous ; and
2. The presence or absence of any pressure on the viscera from the bony deformity.

Angular curvature, Pott's disease, or *spinal tuberculosis,* whatever its situation, is bad from the nature of the disease, and calls for rejection if it presses on and causes any impairment of the functions of the vital organs of the body. This practically means the refusal of all cases of Pott's disease, except under very exceptional conditions. The average age at death of thirty-one cases investigated by Neidert was 49½ years.

Spinal curvature not due to disease of the vertebræ, the round back, simple lordosis, and slight scoliosis, which frequently arise by habitual adoption of a faulty position, are acceptable at ordinary rates in

young and otherwise healthy subjects. Kyphosis and paralytic lordosis are acceptable conditionally, according to the extent of the paralysis and the degree of deformity, and if they be due to infantile paralysis. Spondylitic kyphosis runs a slow chronic course and is acceptable conditionally with policies terminable at 45–50 years.

Inflammatory ankylosis of the vertebral column, grave kyphosis with rheumatoid arthritis and chronic rheumatic disease of the spine should be refused.

Scoliosis of medium degree may be accepted under favourable conditions but for policies terminating not later than sixty.

Severe scoliosis and kyphoscoliosis are only acceptable in very favourable cases for policies terminating at the age forty to forty-five years.

Infantilism or **dwarfism** in any form would be undesirable for insurance purposes, the prospects of life being so uncertain.

CHAPTER XXXIV

THYROID GLAND

Thyroid Gland.—Simple enlargement or hypertrophy of the gland, the so-called Derbyshire neck, has, as far as we know, no effect on the system beyond that of pressure. The danger in these cases is from pressure on the deep structures of the neck which might necessitate operation at any time. Where there is adenomatous growth in the gland this contingency frequently arises, but subjects of Derbyshire neck often live to a good age. If the gland is not increasing in size, and if it has been present for some years, and the case be otherwise unexceptionable the life may be taken at ordinary rates on a limited term of years policy. But if the size is increasing, more or less rapidly, the case must be declined. If there has been an operation for removal of any simple enlarged thyroid gland some years previously, with no recurrence, and with good health in the interval and at the time of examination, the case is insurable at ordinary rates.

Exophthalmic Goitre.—Whatever be its pri-

mary cause this is a serious affection. The suggestive symptoms of the condition are prominence of the eyeballs, onset of nervousness in a person previously without "nerves," palpitation, vasomotor troubles, moderate cardiac enlargement from hypertrophy, dermography, tremors and weakness, and morning diarrhœa.

Exophthalmic goitre is frequently, both in men and women, the cause of obscure illnesses with vague symptoms but which almost invariably comprise vasomotor disturbances and nervousness, some palpitation on slight cause and dermography. The eye symptoms may have to be sought for, when probably even without exophthalmos there will be von Graefe's sign present. The thyroid enlargement may be but slight, though probably it will be found that it has been necessary to wear larger collars. I have seen cases in practice which might easily have come up for insurance examination with a good chance of the true and serious nature of the disease being overlooked.

When an applicant has any form of the disease he is ineligible for assurance, and even if he gives a history of a previous attack some years before, and is apparently quite well at the time of examination, it would be a great risk to accept the life, as recurrences are very liable to occur many years after a supposed complete cure.

Myxœdema is a disease which is eminently amenable to treatment, which, however, must be continuous or a relapse will occur. For the latter reason alone these cases are uninsurable, although with proper care they might live long enough for a limited payments policy.

CHAPTER XXXV

SEA AND WAR RISKS

Naval and Military Risks.—The Gresham rates for war risks are based on calculations which show that a younger man runs more risk of being killed than one older, and for proposers of thirty the extra premium charged is 8*s.* 8*d.* per £100, as compared with 3*s.* 4*d* at forty-five. Each insurance company will probably have its own special terms for these risks.

Sea-faring Risks.—Officers of the mercantile marine are not always as good lives as the amount of fresh air which they breathe would suggest. They are liable to accidents and many take too much alcohol. When they are in first-class lines they are better lives than when in second-rate companies, probably in part because their general steadiness has secured them their good posts.

Some offices issue world-wide sea-faring risks at an extra premium. When the ships engage in notoriously unhealthy trades their officers would not be accepted on any terms.

CHAPTER XXXVI

TROPICS

A LARGE number of men have, nowadays, to be examined before going out to live in our colonies or foreign countries, some for insurance purposes, and others to be passed as healthy for their own satisfaction and for the protection of their employers on whose business they are leaving home.

The question of the safety of other climates, mostly much hotter than that of England, both as it concerns healthy men and men with weak spots, is a large one and cannot be considered here as fully as it deserves. There are, however, some points of interest to a medical examiner who has to report on these cases which may be briefly mentioned.

Dangerous Climates.—Insurance offices usually look upon dangerous climates as those which are in the belt of the world which lies between 33° N., and 30° S. of the Equator, that is, the tropical

and sub-tropical zones. This is a very extensive area, including, as it does, almost the whole of Africa, India, Ceylon, Burma, Siam, the Malay States, Singapore, Borneo, the Dutch Indies, the Philippine Islands, Southern China, nearly all Australia, the West Indies, Central America, and the greater part of South America. Most of our colonies, in addition to the whole of the Indian Empire, are within these zones, and the other countries are all connected commercially with England and many men go out to them in the service of their business firms. Whilst there are very many unhealthy districts in this extensive area, there are, on the other hand, many quite healthy ones, and most insurance companies have special terms for special places.

The most dangerous areas at present are those nearest to the Equator in the tropical zone, and they are dangerous for several reasons, the chief of which are the heat, and the endemic diseases, sanitation and food.

Heat.—The heat itself is not dangerous to a man with good heart, lungs, kidneys and digestion, but it certainly tells on a man after a few years' residence in it. Damp heat is more trying to the majority of Europeans than dry heat, but more important in its bearing on health than the actual heat, dry or moist, is the continuousness or otherwise of the high temperature, that is, the daily varia-

tions in the thermometer. Cool nights freshen up a man very much and enable him to keep his health much better than if the temperature remains high during the night, and countries with cold seasons alternating with hot seasons are more bearable than when the temperature remains uniformly high throughout the year. And even in many districts with a continuous annual temperature, there are hills within easy access by rail where Europeans can live and get cooler nights than obtain in the business quarters, often down at the sea shore, or if the hills be further away a debilitated man can retire to them and recuperate by a short holiday.

Disease, Food, Sanitation. — In tropical climates generally there is little risk from pneumonia, rheumatism, tuberculosis, or acute nephritis ; scarlet fever and measles are scarcely ever met with, and smallpox, in a vaccinated man, is very uncommon. But the endemic diseases are very dangerous. These vary very much in different parts of the world. We may take two important countries, West Africa, and India, as examples and at the same time briefly refer to the food and sanitation questions.

West Africa.—In West Africa typhoid, cholera and plague are unknown, and dysentery and abscess of the liver comparatively uncommon. The ordinary

cases of malaria are by no means serious, involving as a rule only a day or two's confinement to bed. Death is generally due to blackwater fever or to a little understood, and rapidly fatal, condition known as hyperpyrexia.

In West Africa the whites have not as distinct a residential quarter, separate from that of the natives, as they have in India, and sanitary measures are hard to carry out where natives live, and half-sanitation by giving a false security is worse than none. The food supplies are also poor, especially as regards fresh meat, butter, milk and fruit, and tinned foods are largely consumed.

Up to recent years the death rate in the West African colonies amongst Europeans was very heavy. In official returns to the Colonial Office in 1901 the deaths among officials on the Gold Coast were 80 per 1,000, and the invaliding rate 95 per 1,000, and it must be remembered that all officials are medically examined and pronounced fit before going out. The anti-malarial precautions resulted in reducing these rates to others which were in 1903 21·7 per 1,000 death rate and 76·3 per 1,000 invaliding rate, and the health of the place will probably be much better now than four years ago.

India.—In India the special causes of death that raise its mortality above that of England are typhoid

fever, cholera, dysentery, abscess of the liver and bubonic plague. Typhoid fever alone is a very great risk, especially to young people between seventeen and twenty-four, but after the latter age it is materially diminished (Duckworth). Malaria though often of a very virulent type and responsible for an enormous amount of sickness is rarely directly fatal.

In India the death rate amongst Europeans is much less than in West Africa, being in 1901, 13·5 per 1,000, and in 1902, 16·1 per 1,000. But the sickness rate would not be so favourable, as about one-third of the strength of the British troops are admitted once a year to hospital from malaria alone (Giles).

It must be remembered that there are many different climates in such a large area as India, ranging from the cold of the hills to the tropical heat of Southern India and Ceylon.

One feature which makes India healthy for Europeans is that the whites never live in close proximity to the native quarters. The European settlement is always by itself and there sanitation can be properly looked after. The food supplies in most parts of India are almost as good as in England.

Care of the Health.—Even in the more unhealthy districts the risks to carefully-living

whites are much less now than they used to be before the important part which insects and low forms of animal life play in the propagation of endemic diseases was discovered. If a newly arrived healthy immigrant is scrupulously careful in avoiding alcohol, most especially in the day time; chills; bites from insects, especially from mosquitoes; is careful about his food, which is very different from what he has been accustomed to, and of the sources of the water which he consumes; and lives a well-ordered, regular life, his chances of keeping well are considerable. But the risks from the heat, the new ailments, and mode of life which are encountered are greater than the advantages of escape from the diseases left at home, and no insurance company will accept a proposal from a man going out to the unhealthy regions without some security, either by heavy addition to his premium in new proposals, or unless it has had the policy running for some years previously.

This, of course, is very unfortunate from the point of view of the young man on limited income going out to the unhealthy districts. But with the progress of medical knowledge and sanitation the risks of the dangerous zones are becoming yearly less and insurance rates growing easier.

One company allows its policy-holders to go anywhere, provided they have previously insured

with it without the intention or expectation of going to tropical or any foreign climes.

Age.—The younger the age at which a man proceeds to the tropics, the greater the risk of contracting disease. The chances of a youth, or man from eighteen to twenty-five years of age, contracting disease are about 2 to 1, and to a man of between thirty and forty about 10 to 1. Cantlie never has any hesitation in recommending a healthy man of between thirty and fifty to proceed to the tropics to take up work there ; but he does his best to dissuade any one under twenty-one doing so. Each year of life over twenty-one lessens the chance of contracting illness, and a healthy man of fifty has a 50 per cent. better chance of combating the climatic effects and of remaining immune from disease than a youth under twenty. It is very risky for any one over sixty to go to tropical zones.

Most commercial concerns and Government departments which send men out to tropical climates choose men who are not younger than twenty-four or twenty-five.

A man runs most risk of getting ill in the tropics in the first five years of his life there. After this he has learned wisdom ; he appreciates the dangers which surround him, recognizes the advantages of good health and takes more care of himself.

First-class Lives only should be accepted for

service in the tropics, and no young man with a trace of albumen of the so-called "albuminuria in the apparently healthy" type should be allowed to go to regions where blackwater fever prevails.

Insurance after Tropical Residence.—A proposal from a man who has lived some years in the tropics must be considered most cautiously from two points of view. In the first place it must be ascertained whether he suffered from any tropical disease which might leave traces behind, such as malaria with its resultant cachexia and large spleen, and dysentery with possible hepatic abscess or chronic colitis. Congestion of the liver from alcoholic causes must also be borne in mind.

In the second place it is important to know how proposer is standing his return to cold climates after his years in moist heat, for some men take the change home badly, however well they may have been in the tropics. On the other hand, very many old tropical residents live to good old age after their return home.

Malaria.—Even more than one attack of malaria need be no bar to insurance, provided that there have been no attacks for twelve months, and that the proposer is in good health and there is no enlargement of the spleen.

If chronic malaria is present with cachexia and enlargement of the spleen the proposal should be

deferred until the applicant is in a better state of health.

If there are no signs of disease in any of the organs, and there are no contra-indications, the life may be accepted at ordinary rates.

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