

## **On the medical estimate of life for life assurance / by Stephen H. Ward.**

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LIFE ASSURANCE  
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DR STEPHEN H. WARD.

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MEDICAL ESTIMATE OF LIFE  
FOR  
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FOR

LIFE ASSURANCE.

BY

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MDCCCLVII.



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## PREFACE.

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THE AUTHOR has taken for his text in the following treatise the excellent form of medical report framed by his colleague Dr. Newbigging, and by the Messrs. Fraser. He has cursorily reviewed the different elements which enter into the medical estimate of life, and trusts that the work may prove a useful handbook for medical referees, especially for those who are called upon to act as such for the first time. Mr. Thackrah's treatise on "Trades," and that of M. M. Lévy on "Hygiene," have furnished him with valuable information; and he has to express his

peculiar functions and liabilities of this sex will be noticed subsequently.

*Age.*—The medical referee has nothing to do with the actual proof of age, but only to remember that it is relative rather than positive, and that some persons, from inherent weakness of constitution, bad habits, or other exhausting causes, grow old before the age of forty, while others, far advanced in years, are virtually young as regards effective performance of function and vigour of constitution. Where any great discrepancy exists between the real age and that apparent in the aspect, gait, and force, it will be necessary to ascertain, if possible, the cause of such, or, at any rate, to conduct a more searching examination as to health and habits.

Medical men are well aware of the liability of different periods of life to particular diseases. No general conviction can, however, equal the certainty afforded by statistical facts, when based upon sufficiently extensive materials. Mr. Neison, in an analysis of the mortality of the provident classes in this country and upon the continent, based upon facts furnished by

the records of the Gotha Life Society, shows, that "in the decennial period 31—40 the greatest rate of mortality has taken place from pulmonary diseases, next from fevers, then from local inflammations, abdominal diseases, apoplexy, and, last of all, from dropsy ; and the next ten years of life, the mortality of these diseases follows the same order as to their intensity. In the term of life 51—60, however, the following is the order in which the same six diseases stand as to intensity—apoplexy, fever, pulmonary diseases, inflammation, dropsy, and abdominal diseases. And in the next ten years the order is again varied, being apoplexy, inflammation, abdominal diseases, dropsy and fever equal, and pulmonary diseases at the bottom of the scale ; and in the most advanced term of life of the preceding abstract, the following is the order of the intensity of the diseases :—apoplexy, inflammation, fever, abdominal diseases, dropsy, and pulmonary diseases." It appears, therefore, that, so far as the above facts are concerned, pulmonary disease is the disease "of highest intensity in the destruction of life under

fifty, and above that age, apoplexy; the other diseases maintaining varying but intermediate positions in the scale of mortality."

Mr. Neison says, that the generally received opinion as to the insecurity attending risks upon the lives of old persons is shown by statistical evidence to be fallacious, and he observes that, on an attentive consideration of the doctrine of probabilities, it must be clear, that in guaranteeing any event connected with the law of averages, the nearer to unity the chances of the contingency taking place be, the less the hazard of any adventure on the result. Dr. Christison, on the other hand, and most medical men who have had much experience in the subject will agree with him, complains of the insecurity attending risks accepted after the age of sixty, and considers it due, in great measure, to the fact that the prevailing causes of death among the aged are of a kind which it is very difficult to anticipate even on applying the most approved principles of examination. It is advisable, as a general rule, not to accept aged lives unless they are, in all respects, of first class character.

The medical referee should bear in mind those periods in human life to which the term *climacterics* has been applied. It is the "grand climacteric," as it has been termed, the "cycle-closing," as the Chinese call it, which occurs at sixty or a little later, that presents most interest in a life assurance point of view. This period is frequently marked by a change for the worse—a sort of decline without special disease—so that any illnesses, or frequent slight ailments, or mere general flagging of power and delicacy of system occurring about this period, should be looked upon with suspicion.

*The married or single state* of the party proposing is not altogether immaterial. The liabilities affecting the female in either state will be discussed hereafter. For men, whose lives have been somewhat irregular, or habits objectionable, a change from the single to the married state may be looked upon as advantageous. For some, however, especially for those who are deficient in vigour, the early months of marriage may prove trying to the constitution, and as a large number of assurances are effected either shortly before or after entering into ma-

trimonial alliance, it will be well not to lose sight of this consideration.

*Personal peculiarities.*—The general external features next come under observation. When the *temperament* of the individual is broadly pronounced, it should be stated which of the following he exhibits:—

a. The sanguine temperament, characterized by preponderance of the circulatory system, as shown in the ruddy hue of the face, the general injection of capillaries, the volume of heart and lungs, the richness of blood, and evident high vitality; by its tendency to plethora, congestions, and inflammatory affections, counterbalanced, however, by great reparative power.

β. The lymphatic temperament, characterized by slowness of circulatory and nervous systems, fair hair and light eyes, pale, flabby aspect, deficient muscular tone and functional energy; by its proneness to lymphatic and glandular affections, and weak reparative power.

γ. The bilious temperament, pronounced in the dark, sallow, or yellowish aspect, black or brown hair, large bushy beard and eyebrows,

firmness and prominence of muscular and osseous systems, and scarcity of fat; by its tendency to hepatic affections, hypochondriasis, &c.

8. The nervous temperament, distinguished by preponderance of nervous system as exhibited in the large brain and expressive eye, by sensitiveness and impressibility, by its power of developing intense energy under emergency, and incapability of sustained force and action.

In all cases, it is important to note whether the *configuration* of the party be good and symmetrical or otherwise, the relation of breadth to height, the breadth or narrowness of shoulders, the depth and capacity of chest, the amplitude of the pelvis in the female, the slimness or squareness of figure, and the general aspect and form as expressive of powers of resistance or the contrary.

It is requisite also to state whether the *habit of body* be full or spare. Excessive spareness, amounting to emaciation, should excite suspicion, as indicating some constitutional malady which either involves constant loss of material, or interferes with nutrition. Where such emaciation

is accompanied with evident want of power, the life should be declined, even though no disease is to be detected. Great obesity must also be looked upon as an unsatisfactory feature, especially in comparatively young persons. Very corpulent people are usually high livered, and take but little exercise. They are, in other respects, bad lives: the fat in the abdomen interferes with the action of the diaphragm and the effective expansion of the lungs, and causes shortness of breath, either constant, or induced by trifling exertion; fat becomes deposited about the different viscera and impairs their functions; it accumulates around the heart, and in its tissue, and sometimes takes the place of this, while the general mass impedes free movement, and interferes with the exercise necessary to health. Fat people, moreover, exhibit but little power of resistance when overtaken by disease.

The medical referee must next notice whether the *complexion* be clear, pale, ruddy, dusky, or sallow; he must also mark the colour of the hair and eyes, and, in short, endeavour to give in terse, graphic language, an accurate descrip-

tion of the individual, who, like the immortal Pickwick in the Fleet, though under different circumstances, is sitting for his portrait.

If the *aspect be indicative of tendency to any particular disease*, such must be noticed. The medical man will bear in mind the characteristic aspect of certain constitutional maladies.

The scrofulous aspect exhibits itself in pallor of countenance, with transient flush of the cheeks, a tumid state of the lips, especially of the upper, slight glandular swellings in the neck, a flabby state of the muscles, narrowness or malformation of chest, rapid increase in height with deficient lateral development, rather than in any distinctive complexion, such as that expressed in flaxen hair, large blue eyes with long eyelashes, &c., which is now known not to be associated with greater liability to such disease than the complexion of quite opposite character.

The cancerous aspect is seldom marked unless the disease is already developed, and then may show itself in sallowness or pallor of face, or general clayey hue of the skin, and

peculiar sadness of expression. The anæmic, chlorotic aspect of females suffering from uterine derangement, the short neck and plethoric aspect of the apoplectic subject, and the characteristic appearance of the bilious and dyspeptic will not escape the observation of the medical examiner.

Dr. Brinton notices the streaky, capillary congestion, which gives to the middle of the cheek a peculiar mottled appearance, and which, when contrasted with great pallor of the skin generally, and especially of the surrounding integuments, is generally, he considers, associated with an albuminous condition of the urine.

*Habits* of a morbid or disease-engendering nature, form an important item in the medical estimate of life. Of such habits, the one of most moment is intemperance or habitual excessive indulgence in the use of spirituous liquors. At times, the history, previous ailments, or aspect of the party speak openly as to the existence of such habit; at others, it will require all the tact and powers of observation of the medical referee to detect it. No

mere positive assurance of the party as to his sobriety should satisfy, as it is obviously his interest, if not to deceive, at least to make light of his propensities. Or if he do not evade giving a direct answer to queries proposed, his views as to what constitutes temperance may be vastly different from those of his examiner. It will therefore be advisable, if any doubt exist upon the matter, to subject him cautiously, and with apparent indifference of manner, to a series of questions, in order to elicit information as to the quantity and nature of the spirituous liquor which he imbibes, whether he is in the habit of drinking between meals upon an empty stomach, and whether or no his occupation peculiarly exposes him to temptation. Where the means of the party are independent, the inquiry into habits becomes of paramount importance. At the head office of a society, information as to habits, which may escape the medical referee, is often obtained through the agent, private friend, or private medical attendant.

The practised eye of the medical examiner will at once detect the advanced drunkard in the

characteristic bloated countenance. His experience, too, will recall the legion of evils which the spirit drinker entails upon himself, and through which he exposes himself to premature old age and death. Of these evils, may be noticed, first, the effects upon the stomach, which is primarily exposed to the baneful influence, and the mucous membrane of which becomes the seat of chronic inflammation, with attendant loss of appetite, rejection of solid food, and consequent imperfect nutrition and emaciation ; secondly, disorders of the liver, either in the shape of cirrhosis, which is sooner or later inevitably fatal, or of portal congestion, with concomitant oppression of abdominal viscera ; thirdly, effects upon the circulation, in the form of congestions of the capillary vessels of the skin, exhibited in boils and carbuncles, and of irregular action of heart, and even disease of this organ ; and, lastly, various effects upon the nervous system, resulting from its alternate excitement and depression, and undue stimulation of the nervous centres, and developing themselves in apoplexy, delirium tremens, permanent insanity, or temporary fits of

madness, in which the drunkard does violence either to himself or to others. It is calculated that of the cases of mania occurring among the lower classes, at least fifteen per cent. are traceable to this cause, while of those occurring in the middle classes; about ten per cent. have this origin. The medical referee will also bear in mind that one of the consequences of habitual excess is a diminished power of bearing up against the shocks to which the frame is at all times liable. This is particularly observable in brewers' and distillers' draymen, in coal-heavers and others, who, though, from constant muscular exertion and taking regularly a good supply of food, a well developed set of men, yet, from habitual sousing, have a wonderfully low degree of vital force, and frequently fall victims to a mere scratch. This class of men, as well as others in higher station, as licensed victuallers, drivers, commercial travellers, &c., who are given to habitual excess in drinking, are the first to fall victims to the passing epidemic or to the disease of the locality or climate in which they may be placed, and to bring into play here-

ditary predisposition in the shape of consumption, gout, rheumatism, apoplexy, or insanity. They are also frequently cut short in their career by fatal accidents met with when under the influence of liquor.

Mr. Neison, in a paper in the Journal of the Statistical Society for 1851, exhibits this habit in relation to life assurance, in a series of tables based upon carefully accumulated material. From an analysis of these tables, he shows that an intemperate person, of age 20, has an equal chance of living 15·6 years more, while a person of the general population of the country, of the same age, has an equal chance of living 44·2 years longer. Again, at age 30, the intemperate person has an equal chance of 13·8 years, and the other, 36·5 years. At age 40, the chance of the one is 11·5 years, and of the other 28·8 years. He also, by an analysis of the returns of the Registrar-General, shows that, while diseases from other causes exhibit a falling short in intemperate lives as compared with the population generally, the diseases of the nervous system and digestive organs form 15·950 per cent. of the deaths

from all causes at the corresponding ages, but among intemperate persons they form 50·40 per cent. of all the deaths which take place; exceeding the general average more than three times. He concludes, therefore, that these diseases may be taken as the distinctive type of the causes of death among intemperate persons. Mr. Neison also demonstrates that the maximum rate of mortality in intemperate lives is at the age of 41 to 50, and that drinking habits are then most prevalent and confirmed. He further calculates that there is one drunkard to every 74 of the male population above the age of 20, one to every 434 of the female population, and one to every 145 of both sexes above the age of 20. Where any doubt exists as to habits, especially in an individual exposed by occupation to intemperance, the life should be unhesitatingly declined. It must be remembered that this vice seems apt to run in families, or, in other words, that at times the propensity to intemperance would appear to be an inheritance. As a rule, reformed drunkards are bad lives.

Habitual gormandizing, or excess in the

use of animal food, induces an undue quantity and richness of the blood, and predisposes to inflammatory and congestive affections, especially of the abdominal viscera. It is especially serious when coupled with want of exercise, and a sanguine temperament or plethoric habit of body.

The habit of smoking tobacco, which has recently been the subject of so much illogical argument, deserves a passing notice. There is no evidence whatever to show that this practice, when had recourse to in moderation, and not complicated with spirit drinking, at all tends to shorten the duration of life. Addiction to it in great excess may doubtless induce dyspepsia, nervous affections, possibly paralysis, certainly delirium tremens.

Inquiry may be made, although the answer will in many cases be involved in the occupation, as to whether proposer's habits are sedentary or otherwise. The beneficial effects of efficient daily exercise are shown in increased vigour of circulation, in the promotion of nutrition and the various excretory functions; the want of such being exhibited in the converse.

Sedentary habits are especially objectionable in those who are disposed to corpulency or plethora, or who have inherited some constitutional malady.

*Occupation.*—As Life Assurance is no longer confined to the better class of tradesmen, to master manufacturers, and professional men, but is now appreciated and had recourse to by the more intelligent and provident artizans of all classes, it becomes important to determine whether any and what peculiar risk is involved in particular occupations. It is, however, much to be regretted, that, with the exception of the Registrar-General's summary of certain years, and his deductions therefrom, and a recent report by Dr. Letheby, there are no satisfactory statistical tables, exhibiting the relative mortality of different occupations, and no tables whatever exhibiting diseases as affecting occupations. One has therefore to rely chiefly upon different independent sources for facts bearing upon the healthiness of trades and professions. Before entering upon the special consideration of them, it may be stated that there are but few occupations

which, in themselves, exercise so prejudicial an influence on life as to render the risk unusually hazardous, and consequently that the occupation of the party must be taken in connection with other considerations affecting his life.

The Registrar-General, in the preface to his Report for 1851, exhibits the relative mortality of different occupations, as compared with that for all England, in the following table.

| Occupation. | 25—   | 35—   | 45—   | 55—   | 65—   | 75—    | Ages.               |
|-------------|-------|-------|-------|-------|-------|--------|---------------------|
| Farmer      | 1·015 | ·864  | 1·199 | 2·490 | 5·530 | 14·802 | Mortality per cent. |
| Shoemaker   | ·912  | 1·059 | 1·503 | 2·869 | 6·505 | 16·446 |                     |
| Weaver      | ·797  | 1·056 | 1·537 | 3·299 | 7·459 | 17·308 |                     |
| Grocer      | ·763  | 1·046 | 1·579 | 2·265 | 4·972 | 12·457 |                     |
| Blacksmith  | ·812  | 1·240 | 1·651 | 3·724 | 7·443 | 16·710 |                     |
| Carpenter   | ·945  | 1·032 | 1·667 | 2·966 | 6·586 | 14·286 |                     |
| Tailor      | 1·163 | 1·415 | 1·674 | 2·818 | 7·647 | 15·528 |                     |
| Labourer    | ·979  | 1·252 | 1·730 | 2·920 | 6·790 | 17·394 |                     |
| Miner       | ·849  | 1·135 | 2·015 | 3·450 | 8·051 | 17·867 |                     |
| Baker       | ·759  | 1·475 | 2·121 | 3·301 | 6·678 | 15·066 |                     |
| Butcher     | 1·130 | 1·653 | 2·510 | 4·149 | 6·647 | 15·449 |                     |
| Innkeeper   | 1·383 | 2·045 | 2·834 | 3·897 | 8·151 | 18·084 |                     |
| All England | ·948  | 1·236 | 1·787 | 3·031 | 6·396 | 14·055 |                     |

It appears from the above, that the high-

est mortality is exhibited by licensed victuallers, the next degree, curiously enough, by butchers, while farmers are at the head of the scale in point of health and longevity. Dr. Letheby's Report on the sanitary condition of the City of London for 1855-6, presents a somewhat different result. "The expectancy of life," he says, "among young men generally at 20 years, is up to 60. You will perceive that this is nearly the expectancy in London with shopkeepers and domestic servants; for the mean age at which they die is 58·8 and 58·6; butchers, poulterers, and fishmongers, live to the age of 53·8; carpenters, cabinet makers, and workmen in wood, to 52·4; clerks, accountants, porters, and messengers, reach from the age of 52 to 52·3. The same is about the mean age at death of blacksmiths, gas-fitters, and the workers in the coarse metals generally; while publicans, wine merchants, waiters, tailors, labourers, and shoemakers, live to the age of from 49·9 to 50·3. Cabmen, carmen, ostlers, and draymen, live only to 49·4; and soldiers, sailors, and policemen, reach only to 48 years. A like difference ex-

ists in the longevity of females ; for while the wife of the shopkeeper will live to be about 57 years of age, and the domestic servant to 51·5, the wife of the publican and beer-shop keeper and the wife of the cabman and ostler will only reach to 44·2 and 48 years of age ; and, worse still, the poor needlewoman sinks into the grave at 42·6 years of age."

In reference to their effects upon health and longevity, different occupations may be arranged and considered under the following heads :—

1. *Aristocracy, gentry, and men of independent means.* The inquiries of Dr. Guy show, that while the expectation of life for males of England and Wales, at 20 years of age, is over 40 years, or beyond the age of 60, that of the nobility is only 38·5, and that a corresponding ratio is maintained at every succeeding decennial period. In analysing the matter more closely, it would appear that, in point of health and longevity, the aristocracy fall far short of the agriculturist, and below the several professions. The cause of this is to be found, Dr. Guy thinks, in habits of self-indulgence, and

the want of incentives to that exertion which tends so much to promote health and vigour. Among men of independent means are to be found those who are given to indulgences of the table, to excess in drinking, and to other kinds of dissipation ; hence, with them, the inquiry into habits becomes of considerable moment. On the other hand, the wealthy classes are not harassed by the mental anxiety and bodily toil which attend the thinkers and workers of the community, and, when not addicted to those habits to which they are tempted by ample means, may be looked upon as good average lives.

2. *Members of the various professions, literary men, philosophers, and those devoted to the fine arts.* Casper, of Berlin, has calculated that the age of 70 years is attained by 42 theologians in 100, by 29 advocates, by 28 artists, by 27 instructors and professors, and by 24 medical men. Mr. Madden, in comparing the mean life of celebrated men of different classes, has found that of naturalists to be 75 years, of philosophers, sculptors, and painters, 70, of lawyers, 69, of doctors, 68, of theologians, 67. To such calculations as the above, however,

considering the limited range of facts on which they are based, it will be well not to attach undue weight. In the more active intellectual professions, there would seem to be that happy balance of physical and mental exertion which is most conducive to health and vigour both of body and mind.

With the lives of medical men, especially of general practitioners, who, according to Dr. Guy, exhibit a lower expectancy than physicians or surgeons, there is associated much anxiety, frequent loss of rest, exposure, and, at times, great risk of succumbing to contagion. Of 54 deaths from fever in Dr. Begbie's analysis of emerged risks of the Scottish Widows Fund, one sixth part occurred in members of the medical profession,—an experience which justifies, he observes, the caution exercised by his board, when called on to consider the proposal of medical men who have not previously passed through the disease. Dr. Christison feels quite as strongly upon this point:—"In the medical and all other professions necessarily much exposed to contagion in large towns, it should be made a condition of accep-

tance that the proposer has either already had typhus, or has been freely exposed without taking it. In Edinburgh there are few medical men of the age at which assurances are effected, who are not thus qualified." Partly to such exposure, though even more to the first effects of climates may be attributed the high rate of mortality among the younger members of the medical department of the army, as compared with the older and well seasoned members.

Clergymen in general do not take sufficient exercise, and, consequently, often suffer from dyspepsia, hepatic derangement, congestion of the venous system of the bowels, hæmorrhoids, &c. ; sometimes also, in the prosecution of their duty, from contagion. Lawyers also suffer from sedentary habits, and from over-straining the mind. Civil engineers, surveyors, and architects, pursue in most respects a decidedly healthy occupation.

In artists, poets, musicians, and others in whom the imagination is much called into play, one has to dread the extravagances of this faculty, and their leading on to mental aberration.

The sedentary habits of philosophers and students frequently induce the consequences already indicated as likely to arise from such; while mental tension and excitement occasionally result in mania. In the various classes of intellectual workers, the effects depend not merely on individual mental capacity and energy, or upon sustained application, but on the predominance of repose or excitability in the constitution, and the habitual joyousness or gloom of individual character. "The position of the student," remarks Thackrah, "is obviously bad. Leaning forward, he keeps most of the muscles wholly inactive, breathes imperfectly and often irregularly, and takes a full inspiration only when he sighs. He generally lives too in an impure atmosphere, and neglects the common means of relief. The circulation is enfeebled, the feet become cold. The appetite is less frequently reduced than we should expect; often, indeed, it is too great. But whether moderate or excessive, it is greater than the power of digestion: for the application of mind, too great or too long, absorbs the nervous energy which digestion requires. The

stomach becomes foul, the secretion of bile is impaired or vitiated, the bowels are sluggish, and constipation, with its attendant evils, progressively succeeds. As sanguification is imperfect, nutrition is imperfect, and the body either wastes, or becomes plethoric with impure blood. The brain becomes disturbed. Congestion first occurs, and to this succeeds an irregular or increased action of the arteries. A highly excitable state of the nervous system is not unfrequently produced."

3. *Merchants, and others engaged in hazardous speculations*, are constantly in a state of high mental tension, and are said to exhibit a larger proportion of insanity than any other class. People who are engaged in extensive business are very apt to take their meals hurriedly, and hence suffer from dyspepsia, gastric disorders, and hepatic derangement. The dealers and shopkeepers, of 30 years ago, are depicted by Thackrah as leading a lamentably unnatural mode of existence,—shut up from morning to midnight in their shops or little back parlours, without free light or air, effective exercise, &c., and with their minds concentrated on the state

of the till. At the present day, the better class of shopkeepers, especially in the metropolis, avail themselves of the appliances and means afforded of leading a more sanitary kind of existence.

4. *Out-of-door occupations.* The inhalation of pure air, good exercise, early rising and going to bed, simple diet, and, in general, temperance, insure for husbandmen and agriculturists a higher longevity than is attained by any other class. It is calculated, that while in the manufacturing districts the mortality is 1 in every 53, in the agricultural it is only 1 in 67. Exception must be made of inhabitants of fens and marshes, who are subject to repeated severe ague attacks, and consequent lesions of abdominal viscera.

Under this head may be considered soldiers and sailors. The mortality of soldiers even in times of peace, and when they are on home stations, exceeds that of the general population, being for Great Britain upwards of 15 in every 1000. When they are on foreign stations, other causes come into operation, as nostalgia, unhealthy sites, over-crowding and filthiness of barracks,

fatigue, and exposure to weather and peculiar local diseases, deficient quantity and bad quality of food. The mortality among soldiers abroad varies, of course, with the station. According to official documents, the proportion of deaths during a period of 20 years, from 1817 to 1836, in every 1000 effective men, was as follows :—

|      |   |   |               |
|------|---|---|---------------|
| 56.2 | . | . | In Ceylon.    |
| 63   | . | . | Bengal.       |
| 85   | . | . | Antilles.     |
| 143  | . | . | Jamaica.      |
| 200  | . | . | Bahama        |
| 483  | . | . | Sierra Leone. |

Since the introduction of improved dietetic and other arrangements into the navy and merchant service, the mortality of seamen has immensely diminished. Risks from accidents at sea and shipwreck, and exposure to the morbid influences of different climates, still, however, operate in keeping up the mortality of this class. From materials derived from the records of the Master Mariners' Society, Mr. Neison arrives at the following results. " Of 270 deaths, 165 only have taken place from

natural causes, the others from shipwreck and accidents connected with the occupation. The above 270 deaths exhibit an increase compared with the average mortality of the male population of England and Wales of upwards of 86 per cent., or looking only at the 165 deaths from natural causes, a difference of 14·5 per cent."

5. *Occupations which impregnate the atmosphere with—*

a. *Dusts*, as in the case of masons, cutlers, grinders, marble workers, steel and iron workers, fork grinders, needle makers, workers in ivory, bone, or mother-of-pearl, in silk, wool, and flax, corn-millers, colliers, &c. In all these occupations, the danger arises from the fine dust, which is given off, entering the air-tubes, and setting up disease which gradually increases in severity, and ultimately proves fatal. M. Lévy graphically describes the gradual development of cotton phthisis, as it is called, the dryness of mouth and throat, then the cough, which becomes more and more troublesome, until the disease, though essentially chronic bronchitis, takes on the appear-

ance of phthisis pulmonalis, with copious expectoration, hectic, wasting, and the fatal termination. "The inhalation of coarse particles," says Lewis, "is less dangerous than that of dusts finely divided, which penetrate more easily into the last ramifications of the air-cells. The researches of Benoiston and Lombard have proved that sculptors, masons, plasterers, excavators, hatters, brush-makers, harness-makers, mattress-makers, &c., furnish fewer consumptive cases than millers, wig-makers, paviors, sweepers of streets, charcoal dealers, bakers, cutlers, chimney-sweeps, polishers, &c. Dusts from hard substances cause a much greater number of consumptive cases than dusts from soft bodies, or of ordinary hardness. Under the consideration of their origin, mineral dusts are the most noxious to the lungs, then follow animal dusts, and lastly vegetable."

We must not confound with the dust-evolving occupations those of wet-grinders and knife-grinders where the stone is wet, and consequently little or no dust is given off.

β. *Emanations*, either of an animal character, as in the case of carriers, catgut workers, &c.,

which are not attended with any material injury to health ; of a vegetable character, as in tobacco manufacturers, who suffer inconveniences at first, but gradually, in great measure, surmount the ill effects produced by the effluvia ; and lastly, emanations of a mineral nature, as from lead, arsenic, phosphorus, mercury, and zinc, in the trades of plumbers, white lead manufacturers, painters, paint and paper makers, potters, lucifer match makers, looking glass silverers, gilt-button makers, water gilders, brass founders, &c. The effects of lead upon those exposed to its absorption by the lungs and skin, as in the first five of the occupations just noticed, are well known ; the blue line on the gums, the colic, the local palsy, the affection at last of the nervous centres, the general anæsthesia, and perhaps palsy of motor power, the subsequent convulsions and coma, followed by death. The effects of phosphoric emanations, —the necrosis of jaw and bronchial irritation— are serious, but do not very materially affect the value of life. The effects of inhalation of mercurial vapour in looking-glass silverers, water gilders, &c., are seen in the ultimate debility,

tremors, and palsy, to say nothing of the usual characteristic signs. The organs of respiration are much affected by the evolutions of oxide of zinc vapour, in the founding of yellow brass.

Stovers of straw bonnets, and bleachers of worsted, suffer from sulphurous acid fumes, which cause difficulty of breathing, cough, and development of pulmonary disease, especially where the tendency to such exists.

Miners may be considered under this head, as inhaling an atmosphere impregnated with dusts and emanations, although their health is injured by other causes, as by working in a stooping posture, exposure to wet, and deficiency of light. They are not, however, very likely subjects for life assurance.

6. *Occupations involving peculiar and constrained posture, and carried on generally in a confined atmosphere*; as in the case of clerks, schoolmasters, tailors, shoemakers, watchmakers, carpenters, weavers, engravers, milliners, &c.

Clerks, including book-keepers and accountants, bend much over desks, sometimes press their chests against these, and, at any rate,

from their stooping posture, prevent the effective action of the lungs and digestive organs, and suffer from indigestion and indolence of liver, and, when predisposed, from lung affections. The occupations of the tailor and shoemaker, leave their indelible marks in characteristic deformities of the chest. This, in the tailor, is depressed immediately below the ensiform cartilage, and, in the shoemaker, presents a sinking in at the level of the chondro-sternal cartilages of the sixth, seventh, and eighth ribs. "Digestion and circulation," says Thackrah, "are so much impaired that the countenance would mark a shoemaker almost as well as a tailor." Tailors, according to the same authority, are very liable to fistula. The Registrar-General's table exhibits considerable mortality among tailors at the younger ages, 25 to 45. Working watchmakers exhibit a peculiar deformity of the chest, which is deserving of notice. It consists of a permanent elevation of the right side of the thorax and right shoulder, and arises from the peculiar manner in which they bend over towards the left. Engravers are the

victims of constrained posture, and suffer, in consequence, from affections of the head and digestive organs.

Milliners suffer from a variety of depressing influences, such as constrained posture, impure air, deficient exercise, tight lacing, &c.

All those occupations in which there is peculiar posture coupled with deficient exercise act as excitants of consumption. For when the blood flows languidly along its channels, and almost stagnates in the viscera, the deposition of morbid product, as tubercle, is of course materially favoured.

7. *Occupations carried on in a close, heated atmosphere, or in alternations of heat and cold;* as those of bakers, sugar-bakers, cooks, glass-workers, iron-founders, smelters, blacksmiths, &c.

Bakers and sugar-refiners work in a very high temperature, and, from the author's experience, not unfrequently suffer from diseases of the liver, especially cirrhosis, in the production of which the great heat has a share, as, frequently also, have their intemperate habits. It becomes important, therefore, to determine, in an individual following either of these occupations,

the liability, or otherwise, to dyspepsia and bilious attacks. In both occupations, severe colds, bronchitis, rheumatism, and consumption, are induced by great alternations of temperature ; the inhalation of fine flour dust producing distinctive effects in bakers. Cooks and confectioners are also exposed to great heat, and suffer from affections of the digestive organs and head.

Blacksmiths are exposed to alternations of heat and cold, which render them liable to catarrhs, pleurisy, and rheumatism. M. le Docteur Masson, quoted by Dr. Lewis, says that they are subject to inflammation of the liver, which he attributes "to the repeated concussions which the liver receives from the action of the hammer upon the anvil, to the different compressions that this organ undergoes during the work, and still more to the excessive quantity of beer consumed, which disturbs the functions of the stomach, and influences in a special manner the biliary organ."

8. *Occupations injurious from the habits with which they are very frequently associated ;* as those of butchers, commercial travellers, wine mer-

chants, licensed victuallers, brewers, distillers, coach-drivers, cabmen, draymen, &c. Inquiry into habits in individuals pursuing any one of the above occupations becomes of paramount importance; and when any doubt exists upon the point the life should be summarily declined. The evils and peculiar risks attending intemperance have already been sufficiently dwelt upon.

Licensed victuallers occupy so bad a position in the mortality tables that they should scarcely, under any circumstances, be accepted without a considerable addition to the premium. As a matter of experience, the author would advise the rejection of a life of this class, unless in every other respect it be of first-rate character.

To what is to be attributed the position occupied by butchers in the summary of the Registrar General? "This useful body of men," he observes, "experienced a much higher rate of mortality than any other class, except the licensed victuallers, at the ages under 65. Thus at the age 35 to 45 the rate of mortality per 1000 among farmers was 9,

carpenters and joiners 10, shoemakers 11, blacksmiths 12, tailors 14, bakers 15, butchers 17. At the next decimal age, 45 to 55, the mortality of butchers was 23; at 55 to 65 it was 41, or higher than that of any other class." Does such mortality, he inquires, depend "on his diet, into which too much animal food, and too little fruit and vegetables enter? on his drinking to excess? on his exposure to heat and cold? or, which is probably the most powerful cause, on the elements of decaying matter by which he is surrounded in his slaughter-house and its vicinity?" The author's own experience goes to show that the last cause, to some extent, accounts for the high mortality of butchers, he having known houses, to which the slaughter-house was adjacent, in which scarcely a year elapsed without a case of fever having developed itself. Habits of intemperance and gormandising, coupled with insufficient exercise, induce unhealthy plethora and abdominal diseases, and account for much of the mortality. Dr. Letheby's conclusion, as to the tolerable healthiness of the butchers of the city of London,

may be explained by the fact, that good animal diet counterbalances various depressing metropolitan influences. Perhaps, also, the extramural market and slaughter-houses are beginning to operate beneficially.

Having thus glanced at different occupations as elements in the medical estimate of life, it may not be out of place to introduce the following table by M. Lombard, exhibiting trades in relation to consumption. In 1,000 deaths in each of the different occupations noticed, the following proportions were furnished by this disease :—

|                                                  |      |
|--------------------------------------------------|------|
| With vegetable and mineral emanations            | 176. |
| With various dusts . . . . .                     | 145. |
| With sedentary life . . . . .                    | 140. |
| With workshop life . . . . .                     | 138. |
| With hot and dry air . . . . .                   | 127. |
| With stooping posture . . . . .                  | 122. |
| With sudden*movements of arms . . . . .          | 116. |
| With muscular exercise and active life . . . . . | 89.  |
| With exercise of the voice . . . . .             | 75.  |
| Living in the open air . . . . .                 | 73.  |
| With animal emanations . . . . .                 | 60.  |
| With watery vapour . . . . .                     | 53.  |

It may be further observed, that the better the

condition of life, the less the liability to consumption. Marc d'Espine has proved that tuberculosis occasions 68 deaths per 1,000 among the rich, and 233 per 1,000 among the poor.

*Residence.*—There are but few points in regard to residence in this country which materially affect the value of life. Town life, though far healthier than it was a few years back, still falls far short of country. "Taking," says Dr. Letheby, "the mortality of 15 in 1,000 as that which is natural to this country, and comparing it with that of 30 in the 1,000 as that which occurs in some parts of the city of London, you will perceive that the death-rate is exactly doubled; and if, in pursuing the inquiry still further, we ask what has been the mean duration of adult life among those who have passed away from us, we shall find that every man who dies in this city has been robbed of from 10 to 12 years of his existence." It must be remembered, however, that this excessive mortality falls mainly upon the lowest classes, and does not materially affect those who are likely to present themselves for Life Assurance.

There are some country districts, as those of a marshy and malarious character, which exhibit peculiar risks. "Taking the range of 10 years," says the Registrar-General, "the average mortality of the population in England does not exceed 17 in 1,000. The marshes in low ill-drained districts raise the mortality above this. Thus in Ely, Whittlesey, Wisbeach, and North Witchford, four thinly peopled marshy districts in Cambridgeshire, round the Wash, the mortality was at the rate of 23, 25, 25, and 27 in 1,000. The districts on the lower portion of the Thames suffer much from marsh diseases. All our dockyards, except Pembroke, are on unhealthy sites." The author has been informed, upon very credible authority, that in the marshy districts of Essex, near to London, viz., about Barking, Purfleet, Grays, &c., severe agues are common, affecting the entire population, and exhibiting their consequences in severe abdominal disorders, especially enlarged spleen, in general impairment of the constitution and health, and considerably diminished longevity.

It is usually made a condition with the

party proposing, that change of residence to any foreign country should not be made without acquainting the Office with the circumstance. Some of our colonial possessions, as Canada, the Cape, and New Zealand, are quite as healthy as the mother country. Statistics are yet wanting to determine the sanitary position of Australia; but some portions of this vast country would appear, at certain seasons, to be ravaged by dysentery and fevers. Residence in the East or West Indies is a serious matter, and involves a considerable addition to a life in other respects of first class character. An individual who purposes to make a prolonged sojourn in tropical countries should be of unexceptionable habits, and exhibit a perfectly sound state of health, and especially of the abdominal viscera; otherwise, his life should be declined. The mortality among officers and civilians in India, owing to the destructive effects of fevers, dysentery, liver affections, and cholera, would appear to be nearly three times as great as among the same classes at home. In reference to habits, Colonel Sykes remarks that where one teeto-

taller is cut off in India, four intemperate men lose their lives. The relative unhealthiness of other foreign stations was noticed when speaking of the occupation of the soldier.

*Family History.*—In consequence of the absolute influence of inheritance as a predisposing cause of certain diseases, family history occupies a prominent position in the medical estimate of life. It should be fully elicited by questions as to the age and health of parents, if living, or their ages at, and causes of their death; also, as to the ages at, and causes of death of any brothers or sisters that may have died, and the ages and health of survivors. Special inquiries should, moreover, be made, as to the existence of consumption or insanity in either the direct or collateral branches. Parties proposing for Life Assurance are aware that an unfavourable family history tells against a life, and, consequently, at times cover the existence of consumption by describing it under some other name. Thus, a brother or a father is said to have died of asthma or bronchitis, when, on inquiry, the disease is found to have been undoubtedly phthisis; and the very con-

venient expression, died "at" or "soon after childbirth," is constantly used, not necessarily designedly, where the death has been from some constitutional malady ; dying "in childbirth" meaning, very often, some weeks, and "soon after" many months subsequently to that event. It is obvious, therefore, that not a little tact and patience, and the sacrifice of time, on the part of the medical referee, are occasionally necessary in order to arrive at the truth.

The Registrar-General's Office now presents a ready means of verifying the cause of death, but which has not hitherto been systematically turned to account in inquiries connected with Life Assurance. In doubtful cases one of two things may be done ; either to require the party proposing to bring certified copies of the Registrar's returns, or to apply to the chief office on the part of the Company.

It is not so much any special disease that is transmitted as an inheritance, as a special type of constitution with the liabilities which it involves. The line of this hereditary transmission is not always direct from parent to offspring, but is,

at times, very capricious ; now passing over one generation and showing itself in the next, now limiting itself either to the males or to the females of a family.

Sometimes inheritance does not show itself in any morbid form, but in a general debility of constitution, with diminished duration of life. Finlayson has shown statistically that there is in certain families a characteristic longevity, while in others there is an habitual falling short of the allotted average duration of life. "To be born of healthy and strong parents," says Lévy, "is to have a good chance of longevity ; the energy of the constitution is the best buckler against the assault of destructive causes. Rush did not know an octogenarian, whose family did not offer many examples of advanced old age. This observation, made also by Sinclair, has acquired the force of an axiom, so common is it to meet with longevity as a frequent occurrence among many members of the same family. Inheritance exercises the same influence on the total duration of life of short period : in the Turgot family scarcely a member passed the 50th year ; he

who rendered it illustrious, died at the age of 53, in spite of the appearance of great vigour of temperament."

The prominent position which consumption occupies in the mortality tables of this country, is due far more to its undoubted and constant hereditary transmission, than to any peculiarities of climate. It is evident, consequently, that the marked existence of this disease, in any family, gravely affects the value of life of the survivors. To non-professional men it seems a hard matter to decline a life, otherwise of first-class character, simply because strumous disease has carried off certain relatives of the present or past generation. It is nevertheless sound principle of action in Life Assurance; and the medical advisers of "Offices" now make it a pretty general rule to recommend the rejection of a life, when so many as two immediate relatives have died of consumption. "But nevertheless," observes Dr. Christison, "there are personal circumstances which so far outweigh this objection as to allow of a moderate risk being accepted. These are, 1. The Proposer's own general

health, and freedom from colds in particular. 2. A robust frame. 3. A well-formed chest, not flat, or narrow, or high-shouldered. 4. Absence of the scrofulous character of the countenance. 5. A deep respiration. 6. Resemblance to the healthy side of his house, when consumption has come into the family by one side only. 7. A sound state of lungs established by a careful stethoscopie examination. 8. His age being beyond the period when consumption is most apt to be developed in those constitutionally predisposed to it." To such qualifying conditions may be added:—The being beyond the age, by some years, at which consumption has generally shown itself in his family ; absence of the scrofulous taint in his surviving immediate relatives ; following an occupation not likely to act as exciting cause ; and being of temperate habits.

It must be borne in mind that the existence of the strumous diathesis is shown not only by pulmonary phthisis, but also by diseased joints, curvature of the spine, certain eruptions, as lepra and psoriasis, glandular swellings, &c. The physician, just quoted, notices the fre-

quent association of consumption and cancer in families, not in individuals, and considers that one death from each of these in a proposer's family, places his life upon the same footing as two deaths from consumption. Insanity is, also, not unfrequently associated with either of the blood diseases in question.

Heart diseases are frequently hereditary; but their connection with acute rheumatism may explain this. Cancer is another malady hereditarily transmitted, and to which somewhat similar rules may be applied as in consumption. The age at which it is likely to develop itself, the symptoms which would indicate implication of any special organ, and the characteristic aspect will not be lost sight of.

Articular rheumatism, again, is in many instances an inheritance. Of 165 cases of acute arthro-rheumatism, collected by Chomel, Patouillet, and Piorry, 81 were proved hereditary. Inheritance, again, is not only the most frequent predisposing cause of gout, but is in many cases the exciting cause also, where the habits of individuals, as regards exercise and temperance, are unexceptionable. Sir C.

Scudamore found that of 522 patients, 322 could trace the disease to either parent or grandparent, uncle or aunt.

The liability to certain abdominal affections, and especially to diseases of the liver, would appear to be hereditarily transmitted. M. Lévy gives the following illustration. Louis Pierre Desmorètes died in 1804 of abscess in the liver; of six children which he left, one perished in the Moscow retreat, and the five others died, like their father, of abscess of the liver, between the ages of 48 and 55; the eldest of the five children, who died at Tours in 1830, left a son now (1850) 48 years old, and of pronounced bilious temperament; this last is himself father of two sons, the eldest of whom presents all the marks of hepatic predominance, whilst the younger, who furnished these details is of sanguine-lymphatic temperament. Calculi and worms would also appear to be hereditary.

Many cerebral affections, as apoplexy, epilepsy, and insanity, are distinctly hereditary. Cerebral hæmorrhage occurs in certain families, generation after generation. Apoplexy, as a

general rule, shows a preference for those descended from apoplectic parents, especially where the conformation is the same—or rather it is this, with its liabilities, which is inherited. Individuals descended from apoplectic parents, and of apoplectic aspect, should be closely questioned as to their liability to headache, vertigo, epistaxis, &c. Epilepsy has been shown, by a considerable accumulation of facts, to be hereditary.

Insanity, or the special type of constitution which involves it, is not only inherited, but shows itself in the same form in the members of the same family. The attack frequently, too, occurs at the same time of life in the offspring as in the parent. M. Foville regards hereditary transmission as the most frequent cause of insanity. M. Esquirol, in 431 insane persons, noticed hereditary transmission 337 times; and M. Desportes, in 3,458, 342 times; whilst it was noticed 105 times in 789 insane persons at the Salpêtrière.

The various risks attending this malady must be obvious to any medical man. When an individual descended from an insane parent

or parents, or with one or two of his immediate relatives so affected, is described as having had an attack of "nervous depression," "nervous debility," "hypochondriasis," "cerebral congestion," or as being liable to frequent headaches, &c., it will be advisable to decline the life.

In some cases it may be desirable to extend family history inquiries to the children of the party proposing, inasmuch as, at times, especially in such blood diseases as struma and syphilis, the condition of the offspring reflects light upon the constitution of the parent.

The medical referee will be alive to the importance of viewing a faulty family history in connection with other circumstances, as, for instance, occupation. Thus, a stone-mason or baker, who has lost one immediate relative from consumption, is much in the same position as a man who has lost two relatives from such cause, but is pursuing a healthy occupation.

*Previous illnesses or accidents.*—Inquiry is next to be made into the antecedents of the party proposing, as regards illness and accident. It is advisable and usual to note down the ailments from which proposer has suffered, the

date of their occurrence, their duration, and the name of the medical attendant at the time, for further information if requisite. The Medical Referee must take care that the diseases of the party are correctly described, as, of course, with the unscrupulous there will be no hesitation in deceiving, if they think they can escape detection; and even those possessed of general honesty of purpose, lay the flattering unction to their souls that there is no harm in qualifying, or stating but a portion of the truth.

Special inquiry is to be made as to whether the party has had certain diseases which affect more immediately the value of life. These diseases are .—

1. *Rheumatism.* Where the party states that he has suffered from this, it should be distinctly specified, whether it was of the chronic muscular, or acute arthritic character. If the latter, it will be necessary to elicit information as to its severity and duration, and whether the heart was affected or no. In all cases, where there has at some previous period been an attack of acute rheumatism, it will be necessary to institute an unusually careful examination

of the heart, in order to determine whether there is any permanent lesion of this viscus. If there be anything abnormal as regards sounds, rhythm or impulse, or even occasional functional derangement in the way of palpitations, the life should be unhesitatingly declined. Medical men are now thoroughly aware of the intimate connection between acute rheumatism and diseases of the heart. Bouillaud considers that heart disease occurs in a large majority of cases of acute rheumatism. Dr. William Budd found, that of 43 cases of acute rheumatism, 21 had heart affection, and five of these pericarditis. Dr. Begbie, in his analysis of emerged risks of Scottish Widows' Fund, found that of 53 deaths of diseases of the heart and large vessels, there were 13 persons who had suffered from acute rheumatism before acceptance. Dr. Christison, in his analysis of "Standard" risks, does not find the proportion quite so great. The liability to the complication, it should be remembered, is greater in young people than in those of more advanced age. When the proposer exhibits the rheumatic diathesis, and has al-

ready had one or two attacks, it will be better to decline the life.

2. *Gout*. The having suffered from an occasional attack of this disease, does not materially affect the value of any life ; although the dangers of retrocedent gout, and the fact that the disease goes on increasing in force and frequency of manifestation, and so ultimately affects the constitution, would seem to indicate some additional risk. Mr. Hannam states, that out of 152,000 persons assured at the Equitable during a period of 21 years, at every age from 10 upwards, only 21 died of gout, and those principally of advanced ages, and he concludes, therefore, that it is very problematical whether it tends to shorten life. It must be remembered, however, that deaths from retrocedent or suppressed gout would be represented under different titles, and that, consequently, the statistics in question do not fairly represent the risk. When an individual is a great victim to gout, and has had severe attacks in the stomach, or suspicious head or chest symptoms, it will be better to decline the risk. In a gouty

person who is a free liver, and of sedentary habits, the risk is, of course, increased.

3. *Rupture*. When this exists, it is necessary to ascertain, by special examination, its nature, and whether an effective truss is worn, the continuance in the use of which should be made a condition of acceptance. It will be well also to consider how far the risk of strangulation is increased by occupation. It is usual to make an addition to the premium in all cases, whether of long or of recent standing. The author of "Memoranda for Effecting Life Assurance," shows that the danger from hernia is perhaps over-estimated, from the fact, that of 799 cases of rupture which were admitted into the hospitals of the British army during a period of about 20 years, 10 died; being only one death in every 79.9 cases.

4. *Erysipelas* is a disease of diminished vitality, and its occurrence should be regarded with suspicion, especially in those whose occupation exposes them to intemperate habits. "Erysipelas," says Dr. Begbie, "has proved fatal in eight instances, in the experience of the Society (Scottish Widows' Fund), and has

been associated with several internal affections which have been the cause of death ; more particularly with disease of the brain and its membranes, and disorders of the liver and bowels. Considering the frequency of this association, the disposition of the disease to recur from time to time, and its origin in depraved digestion and defective assimilation, I apprehend that those who have been affected by it cannot be considered as eligible subjects of life assurance."

5. *Spitting of blood.* The experience of all physicians shows, that pulmonary consumption is the termination of a very large majority of cases in which there has once been hæmoptysis to any extent. Dr. Walshe considers that there is no material exception to this rule, even in the case of females where it would appear to have been vicarious. In some cases where there has been slight spitting of blood, it will probably be easy to determine the source of the hæmorrhage, and to show that it did not come from the lungs ; but if any doubt exist, the society should have the benefit of it. Where there has been undoubted hæmoptysis

to any extent, especially in an individual exhibiting a strumous tendency either in himself or family, the life must be unconditionally rejected.

6. *Chest affections—asthma.* Repeated attacks of bronchitis in old people, similar attacks or even frequent catarrhs or colds in individuals exhibiting any strumous tendency; also, in individuals with such tendency, an attack of pneumonia or pleurisy, especially if such attack have left behind any lesion whatever, would render the life ineligible. There would obviously be increased risk, in case of any fresh acute attack, to a lung or lungs already damaged. Asthma, when of purely spasmodic character, occurring only at distant intervals, and evidently dependent solely on an exciting cause, such as peculiar locality, severe indigestion, &c., does not materially affect the value of a life. It is necessary, however, to be certain that there is no predisposing cause of such functional derangement in the shape of organic lesion of the heart or lungs.

Mr. Christie's analysis of the Registrar General's Reports for seven years ending with

1854, gives a total of 354,536 deaths from consumption, or a proportion of 12,355 in every 100,000. According to the Report of the Registrar General for 1856, 25 in 100 deaths are caused by consumption and by diseases of the respiratory organs; consumption causing one-half of these, or one-eighth of the whole, and nearly one-half of all the deaths between the ages 15 and 35. Again, from Dr. Begbie's careful analysis of the mortality which occurred among the persons assured in the Scottish Widow's Fund from 1815 to 1845, it appears that 24·7 per cent. of the whole mortality was due to diseases of the respiratory organs. Moreover, consumption is now known not to be, as was formerly supposed, peculiarly a disease of the earlier periods of life. Although the absolute mortality is greatest between 20 and 40, the relative mortality is greatest between 40 and 50, and the liability continues even beyond 60. The consideration of such facts will show how important it is that the medical referee should acquaint himself with the tendency of the party under examination to such disease in the

way of inheritance, antecedent ailments, and present health.

7. *Dropsy and renal affections.* As a general rule, an attack of dropsy renders a life ineligible. At all events, the occurrence of such, even some years previously, involves the necessity of very careful examination of the heart, and, also, through the urine, of the kidneys. After recent scarlatina, it will be desirable to test the urine. Dropsy, it may be observed, occupies a prominent place, as a cause of death, in the Registrar-General's reports.

Tendency to attacks of gravel is bad in those whose ancestors have been victims to calculus. An attack of diabetes would, of course, disqualify for assurance.

8. *Diseases of the liver* have already been shown to be entailed as an inheritance, and, at least cirrhosis of the organ, to be induced by intemperance. We must look suspiciously upon parties reported to have been occasionally bilious, or to have had an attack or attacks of jaundice, especially if they are free livers, about the middle period of life, and exposed

by occupation to over indulgence in spirituous liquors.

9. *Stomach and other abdominal affections.*

Dr. Christison considers that "in the case of proposals of assurance about the commencement of old age, a liability to stomach complaints should be viewed with distrust." He also dwells upon the frequent connexion of latent tubercle with indigestion, and considers that a liability to this should be viewed with distrust in those who exhibit any strumous tendency. Frequent diarrhæa or vomiting may, it should be remembered, depend upon some organic lesion. The presence of tape worm, with its possible train of severe nervous symptoms, is against a life. Such a life should, indeed, not be entertained, until we are satisfied by medical certificate that the worm has been removed.

10. *Fits.* It is not always easy to determine the nature of a fit or fits from which an individual is said to have suffered at some previous and perhaps distant period. When there is any doubt, it is best not to incur the hazard of recommending the life. An attack of syncope depen-

dent on some evident exciting cause, as gastric derangement, exhausting discharges, or severe physical or mental exhaustion, offers no objection to a life that has subsequently been in all respects good. One attack, however slight, of unquestionable apoplectic character, or of paralysis dependent upon whatever cause renders a life quite ineligible. Attacks of giddiness, headache, epistaxis, or cerebral congestion, or habitual costiveness, or an irregular or intermittent pulse, are fatal objections if occurring in subjects either personally or hereditarily predisposed to apoplexy. It should also be borne in mind that apoplexy is peculiarly a disease of advanced life. "Of the 72 deaths," says Dr. Begbie, "recorded by the Scottish Widows' Fund, 20 took place before 50, and 52 after that age. Of the 63 recorded by Rochoux, 17 occurred before 50, and 46 after that period of life; and, in the experience of both, nearly twice as many instances of the disease showed themselves between the ages of 60 and 70, as between 70 and 80." Apoplexy also causes greater mortality in advanced life than any other disease.

One attack of mania, or even of hypochondriasis, or mental or nervous excitement or depression, where there is hereditary tendency to insanity, would disqualify for life assurance.

11. *Open ulcers.* In reference to these, Dr. Brinton judiciously observes that they "will generally oblige us to decline the life in which they are at present. The elements of the increase they add to the average risk are not very difficult to imagine. They imply a drain on the constitution which, as age advances and nutrition declines, may become a dangerous or fatal one. Their closure sometimes brings about visceral disease by revulsion of morbid action to internal organs. They indicate in the man either a bad constitution, or hurtful habits of life, often both. Lastly, while they may at any time take on increased action, so as to threaten the limb or the life, they involve no inconsiderable risk of infection with erysipelas, if, indeed, they do not sometimes form a channel for the reception of the exanthematous disorders."

12. *Accidents* which occurred at some pre-

vious period may have left behind them results unfavourable to the value of life, in the way of permanent lesion of particular organs, or impaired state of constitution. The loss or shortening of a leg, or a stiff joint, may entail inability to take sufficient exercise, and consequent ill effects.

13. *Vaccination.* Have you had the small pox, or been effectually vaccinated? is a question to be found in the forms of examination adopted by all offices. Mr. Milne observed, many years ago, that vaccination, if pushed to the extent of exterminating small-pox, would diminish the mortality from 1 in 40, to 1 in 43·5, or nearly 9 per cent. Its importance as a safeguard against one of the most fatal scourges of humanity is duly appreciated by medical men, and its performance is now insisted upon by legislative enactment. Some of the public, however, doubt its efficacy as a preventive of small-pox, while others call in question the necessity of insisting upon its performance, on the ground that the disease against which it is to act as a protection, is almost exterminated. These views may, how-

ever, be at once answered by reference to statistical facts. In a letter addressed some months since to the editor of the *Times*, Mr. Marson, surgeon to the Small-Pox and Vaccination Hospital, says, that the proportion of persons who take the small-pox after vaccination to the number vaccinated is very small indeed; and of those who do take it, and have four or more cicatrices, a fatal termination does not occur oftener than once in 200 attacks. Mr. Marson's statement is based upon a careful record of all cases admitted into the Hospital during a period of 20 years.

In the Report of the Vaccine Board for 1856, it is shown that small-pox is yet far from being annihilated, that the mortality is quite as great as ever among those attacked, and that even the more advanced periods of life do not enjoy immunity from it.

The vaccine scars should be looked for in all cases where there is the slightest doubt about their existence; and when they are imperfect, faint, or not to be detected, re-vaccination should be made a condition of acceptance. Some individuals seem to have been proof

against the virus, after repeated vaccinations, in early life ; but this affords no argument, as physiologists are aware, against re-performance of the operation in maturity.

*Present health.*—Having made himself acquainted with the antecedents of the party, in the shape of habits, previous ailments, family history, &c., the medical referee must proceed to a personal examination, in order to ascertain the existing state of health, and freedom from disease and deformity. If the examinee be not in present good health, if he be suffering from severe cold or bronchial affection, from headache, indigestion, diarrhæa, &c., it will be better to defer the examination until he has recovered.

A careful examination must be made of the chest, and note taken of any deviations from the normal condition to be detected by the eye, in the way of malformation, as undue projection of either side, the condition called pigeon-breasted, &c. The state of the lungs and heart must next be examined into by palpation, percussion, and mediate or immediate auscultation. Medical men will do well

to bear in mind the fact, that normally there is, in a large majority of cases, more marked vocal resonance and fremitus over the right than over the left apex. This is, however, frequently set down in medical reports as an abnormal symptom, or the unsatisfactory statement is made, that there is a difference in the two sides.

Is the aid of the spirometer indispensable in examinations for Life Assurance? Considering the great variation in the results arrived at by different inquirers as to standard vital capacity and deviations therefrom, the difficulty that there is in getting individuals to use the instrument properly, the fact that the instrument itself can only give rough indications, and should never supersede the more careful examination and more reliable results obtainable by the other methods of examination, it may fairly be concluded that its aid is not indispensable, and that the condition of the lungs may, in nearly all cases, be perfectly well determined without it. There is one condition, however, that, namely, of diffused tubercle, in which auscultation and percussion

would fail perhaps to reveal anything definite, but where the spirometer would announce diminished vital capacity. Even here, however, by imperfect expansion of chest, by constitutional signs, such as hurried breathing and frequent pulse, and, possibly also by family history, we should form a tolerably accurate idea of the existing state of things.

When any morbid condition of the heart exists, or is suspected, if the characteristic sounds are not at once evident, they may be rendered so by making the party walk quickly up and down the room. The aspect and pulse will generally aid in the diagnosis of such lesion.

It is, of course, quite unnecessary to dilate upon the characteristic physical signs of various pulmonary and cardiac affections; as every well educated and experienced medical practitioner is presumed to possess a ready familiarity with them.

The circulation, and its index, the pulse, of an individual under examination is usually nervously excited. Allowing for this, any marked deviation from the healthy character,

in the shape of undue frequency or slowness, irregularity, intermission, or deficiency, will not escape notice. Extreme frequency in a party exhibiting hereditary or personal strumous tendency, is, of course, an objectionable symptom. An intermitting, or irregular pulse, if of recent standing, is against the acceptance of the life, especially in people advanced in years. Such a state of pulse may be habitual—a personal peculiarity. A report from the private medical attendant will usually decide this. Ossification of arteries, with the increased liability to cerebral hæmorrhage which it entails, will necessarily involve rejection of the life.

The state of the liver and spleen, the general softness, or otherwise, of the abdomen, may next be determined by palpation and percussion. No special examination of the kidneys through the urine is required, except in cases already indicated. When any one organ has exhibited greater susceptibility to disorder than the others, or the party has suffered from an attack likely to involve damage of any organ, a more special and detailed report upon the

present state of such will be desirable. Thus, special notice of the lungs is requisite in one who has had an attack of pneumonia, or repeated attacks of bronchitis; of the heart, in an individual who has suffered from acute rheumatism; of the liver, in any one who has been jaundiced or frequently bilious.

Much that relates to present health has been noticed under previous heads. It remains, therefore, only to observe, that the greatest tact and delicacy should be exhibited in conducting the personal examination. The medical referee should proceed with his inquiries and investigation in a quiet, easy, and assuring manner, and thus endeavour to allay the fears and nervousness so frequently exhibited by the examinee at the commencement of the interview.

*Peculiarities affecting the female.*—It is necessary to make inquiries as to the regularity of the uterine functions. The hazards attending puberty and the cessation of the menses must be borne in mind, though there can be no doubt that these have been much overrated.

The danger attending childbirth would also appear to have been hitherto considered greater than it really is. The Registrar-General finds that, on an average of eight years, about one in every 189 accouchements were fatal. It appears also, from tables based upon Swedish returns, and cited by the same authority, that the danger of dying in childbirth is greater at the age 15—25, than it is at 25—35. “It is in this early age that a large number of children are borne by their mothers; and these first births are, for various reasons, attended with peculiar hazards.” The first births that occur after 30 are, however, undoubtedly attended with relatively greater risk than those occurring at an earlier period. “It may be probably assumed,” says Dr. Farr, “that the child-bearing women of a population are, in the language of the Insurance Offices, ‘select lives,’ at least, ‘select’ in a certain sense; but it can only be determined by further researches, whether they are less or more liable than other women to be attacked or to die by the diseases not incidental to childbirth. It is only well known that when

they are attacked by zymotic diseases, such as cholera and small-pox, they succumb in unusually high proportions."

An inquiry should be made of the party as to the number and favorable nature, or otherwise, of her confinements; and if she be now pregnant with her first child, or her previous confinements have been attended with any peculiar risk, especially that of hæmorrhage, it will be better to defer the consideration of the proposal until the confinement is over. A young female who exhibits any marked contraction of pelvis, or other feature of development likely to involve undue risk from child-bearing is, of course, a bad life.

Having furnished himself with all the materials necessary to form an estimate of the life before him, the medical referee will express his opinion of its eligibility for assurance, either in some general summary, or by placing it in one of a certain number of classes. These are generally three in number. The first consists of unexceptionable lives, or lives presenting so little that is objectionable that they may be assured at the usual rate; the second, of lives

in which the objectionable circumstances are such as to involve more than ordinary risk, which is to be met by an addition to the premium ; the third, of lives presenting objections of so serious a nature that it would be inexpedient to entertain them upon any terms.

The medical referee will save much trouble at the head office of the Society for which he may be acting, by giving due attention to all the questions in the printed form, by avoiding, as far as possible, qualified expressions, and by reporting positively upon the different points of the life before him.

In deciding in which class any given life shall be placed, all the circumstances which affect its value must be taken into consideration ; and there must be borne in mind what experience will confirm, that, as a rule, small additions are useless, and that extra risk is to be avoided by rejection, or met by a considerable addition to the premium. There will be no difficulty in at once coming to the conclusion that certain lives are eligible, and that others are quite ineligible ; but there is a large number of intermediate lives that will tax the pa-

tience, demand mature consideration, and involve further inquiries before they can be finally disposed of. These no especial rules can exactly meet, and, after all that has been advanced in the way of guidance, much must be left to the tact, judgment, and experience of the medical examiner

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