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FOR

LIFE INSURANCE

BY

H. P. STEARNS, M. D.



HARTFORD :
HUTCHINGS PRINTING HOUSE.

1873.

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1868

Film 2395. Item 1

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ON
MEDICAL EXAMINATIONS
FOR
LIFE INSURANCE.

THERE has never been a time in the history of Life Insurance in this country, when the importance of a thorough preliminary examination, by a competent surgeon, was so important to the interests of insurance companies, as the present. Within the past few years, the public has, in a measure, become acquainted with the vast benefits of this kind of insurance, and many persons in almost all the avocations of life, from the humble artizan, dependent upon the proceeds of his daily labor, to the person of competence, are availing themselves of its advantages. In consequence, no less than eighty new companies, within the past ten years, have entered the field, to so-

licit their share of public patronage. These new companies probably employ more than five thousand agents to represent their interests, and such advantages as they possess, to the insuring public; add to this number the largely increased staff of the old companies, and as a result, nearly every village of any considerable size throughout the country is yearly visited and canvassed for available risks.

It could not be otherwise than that much competition should exist among so many companies, and, in the strife for business, it is to be feared the agent may obtain risks without due reference to the interests of the company he may represent; and the danger is increased by the practice of allowing a certain per centum on the premiums secured by him. It therefore becomes a question of no little significance to all companies, how they may best secure themselves from the ill effects of this competition, and at the same time reap its benefits.

This can be accomplished, in a measure at least, by securing the services and interest of well educated and competent surgeons; and with this view and for this purpose, among others, surgeons are employed. They stand,

therefore, as the grand conservators of the interests of the companies who employ them; and their position becomes one of great delicacy, as well as responsibility.

Not unfrequently, persons who either know or suspect the unsoundness of their lives, impelled by the influence of friends, or by their desire to secure something for their families, endeavor to effect insurance. It is true, the terms of the policy expressly provide, that the insurance shall be rendered void by any fraudulent or untrue answers; but the hope is, that the matter will not be contested in the courts, and if it is, that the jury will decide in favor of the unfortunate widow and fatherless children, rather than for the wealthy company. While, therefore, the surgeon should seek to conduct every examination in a spirit of candor and fairness, he should at the same time proceed with all the care and thoroughness he would exercise, if he, beforehand, expected to find cause for rejection.

Another fact adds to the special responsibility of the surgeon in examinations for life insurance, namely: that disease is often found to exist in subjects who have never suspected it. This is especially true relative to incipient phthisis, diseases of the kidneys, and valvular

disease of the heart. Every surgeon, who has had much experience in examinations for life insurance, will readily call to mind such cases; and, inasmuch as the indications of such disease are made certain, only by careful auscultation with an educated ear, and other evidence, the importance of great care in all examinations can hardly be overestimated. The acceptance of one such impaired risk in each hundred policies issued by a company, would compromise its solvency. How many such are passed and recommended, through the carelessness or incompetency of surgeons, is not for us to conjecture at this time; the danger must be apparent to all, as well as the vast interests at stake.

We scarcely need to add, therefore, that one of the principal efforts of every life insurance company should be to procure the assistance of educated and reliable surgeons, and by adequate compensation for services rendered, and otherwise, secure their interest in the welfare of the company. No surer guarantee for the success of any company can exist, than the fact, that it is in the possession of the interest and aid of a staff of such medical men. The larger number of companies already have in their employ men of education and char-

acter, who, it is presumed, hardly need suggestions as to the importance or mode of conducting their examinations. Yet it is believed there are many, at least of the younger portion of the profession, and others who have had limited experience in this kind of examination, to whom some observations upon the relative importance of the different parts of the Application and Examination in their relation to risks, will be welcome. They will become the more so, from the fact that comparatively little has been written which is readily accessible, except in connection with other subjects and in a very general manner.

The following observations are based upon the principal topics embraced in the form of application and examination used by the Travelers Insurance Company, Hartford, Conn., and may be included in the family history—personal history, and present condition of applicant. I have designedly placed the family history first in the order of examination, inasmuch as it may be conducted in a conversational manner, and during its continuance, any unnatural excitement of the nervous and circulatory systems, which often exists, will more readily pass away. The fact that this intelligence is usually obtained by the agent, in no

degree diminishes its importance, and in all cases, the medical examiner is expected to satisfy himself that the questions and their importance have been appreciated by the applicant, and that they have been intelligently answered.

FAMILY HISTORY.

Questions concerning the ages and state of health of parents, grandparents, and other relatives, if living, and if dead, the causes of death, the ages at which they died, and whether they suffered from diseases transmissible in their nature, not unfrequently cause surprise, and even annoyance to some persons. The relation that such particulars bear to their own expectation of life, is not very apparent to them; yet, setting aside the matter of health altogether, the mere fact, that the ancestors of a person have lived to an advanced age, is certainly of much importance to him when considering his expectation of life. It is a well established fact, that, *ceteris paribus*, persons connected with long-lived families, have a much more tenacious hold upon life than others; the capacity for resisting the changes of climate, the morbidic poisons of the atmosphere,

and the influence of epidemic disease, is greater than with other persons: and, conversely, the capacity for resisting these influences is less with persons whose ancestors have invariably died at an early age. So also, if a person resembles in physical form, complexion, and constitution, the ancestors on one side of his family who have lived to old age, while those on the other side have died comparatively young, his prospects of longevity are strengthened in proportion. *M. Levy says: "To be born of healthy and strong parents 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 vigor of temperament."

*Ward on Life Assurance.

In connection with the subject of longevity, the *nature* of the disease causing death, especially in the case of parents, becomes of much importance, and in many cases it is not easy to obtain accurate information on this point. For instance, I have been not a little surprised, in examining applications for insurance, to observe in how many cases one of the parents is reported to have died of "*pleurisy*," or "*bronchitis*," or "*a decline*," or "*of child-birth*." Now, while death may occur from such causes, in persons previously healthy, they are exceptional cases, and medical examiners should ascertain, if possible, what has been the previous state of health, length of time elapsing after the commencement of illness, before the occurrence of death, the nature of symptoms existing, etc., etc. Not unfrequently, females, who have a tuberculous tendency, and have experienced an indifferent state of health up to the time of confinement, soon after pass into a rapid decline, and die, not so much from the effects of child-birth, as from the previously existing tubercle in the lung.

This leads me to refer to that disease, which, in its importance, stands first in the list of those manifesting themselves in the family history of the applicant for insurance. It is es-

timated that from one-fifth to one-seventh of all persons in this country die of *consumption*; and it is remarkable how few die of it, in whose family history its previous existence has not been known. The peculiar diathesis appears to be transmitted from one generation to another, to a greater extent, than that of any other disease; not that it manifests itself in a direct or undeviating line, but often nearly, or quite, leaving one generation, passes over to the next, or one branch of the family, is manifested in another. Now it is apparent that, while so large a proportion of the whole population die of consumption, the fact that it has existed in the family of an individual, either in his own, or a previous generation, is not of itself, sufficient to exclude him from the benefits of insurance. It, therefore, becomes a question of *degree*; how much taint of the disease is sufficient to render the life of an individual an undesirable risk? The question relating to this subject, in the blank form of application, includes the father, mother, uncles and aunts, brothers and sisters, of the applicant, and since the general proportion of deaths from this disease is so high, it would be expected that, probably one, or possibly two, deaths may have occurred from this dis-

ease in the above family circle. Such an occurrence would not, therefore, necessarily exclude the proposer; but when one parent has died of the disease, and one brother or sister, the desirability of the risk is exceedingly doubtful; and in case two or more brothers or sisters have died, besides the parent, the case must be rejected. The fact that one parent has died of phthisis, the other being healthy, or having died of some acute disease, and one or more of the uncles or aunts on the same side of the family having died from the same cause, would prejudice the acceptance of the risk, especially if the applicant had not attained to the age of the affected parent; if, however, none of these relatives had been affected with the disease, and the proposer were of a healthy, robust temperament, and engaged in a favorable occupation, the case might be accepted.

It is stated above, that when two of the immediate relatives have died of consumption, the case becomes very doubtful, or should be rejected, and this is understood to be the rule with English companies; however, Dr. Christison says, that "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 inspiration. 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 stethoscopic examination. 8. His age being beyond the period when consumption is most apt to be developed in those constitutionally predisposed to it."

It should be borne in mind that this diathesis is not always manifested by disease of the lungs, but very often in other parts of the system, especially the joints, spinal column, and the glands; also, that the disease is generally more surely transmitted by the mother, than the father.

Statistics appear to indicate that *Insanity* is even more frequently transmitted from parents to children, continuing often during many generations, than the disease we have just been considering. "Inheritance," says Dr. Wood, in speaking of the predisposing causes of insanity, "is the most frequent source of this predisposition, perhaps more frequent

than all others put together. Even a particular form of insanity is often inherited." Dr. J. S. Butler says, "Hereditary transmission is one of the most frequent predisposing causes of insanity." M. Esquirol and others refer to the same fact. While the immediate effect of an attack of this disease upon the life is not so marked as that of consumption, yet the extreme undesirability of such risks must be apparent to every medical examiner. Aside from the danger arising from the tendency to self-destruction, the continual wear upon the nervous system and other parts of the body, from the excitement of an acute attack, is exceeding prejudicial to longevity. In all cases, therefore, where one of the parents or immediate relatives of an applicant has been affected with the disease, the necessity for a careful examination relative to affections of the brain and nervous system is readily perceived, bearing in mind that attacks of "nervous debility," "depression" and "hypocondriasis," are frequently the precursors of acute disease. Personal circumstances, such as poverty or wealth, nature of occupation, whether married or single, etc., etc., may always possess a share of influence in deciding the case.

Cancer is not unfrequently inherited, yet it does not usually affect such numbers of any one family, as to render its existence, in the family history, an absolute cause for rejection. Where, however, both cancer and consumption have existed in the circle of immediate relatives, even though only one has been affected with each disease, the risk should be declined.

Other diseases are known to be sometimes transmissible, such as *apoplexy, epilepsy, disease of the heart, articular rheumatism, and gout*; but the uncertainty and irregularity of the inheritance is such, that, in the present state of our knowledge, their influence on life insurance cannot easily be determined. When, however, other objections to the risk exist, the prevalence of any of them in the family history would cause the rejection of a case which, otherwise, might have been accepted. I may add, that the existence of rheumatism or gout in the family of one who has already had one or two severe attacks of either of these diseases, though the heart may have apparently escaped all influence, would prejudice the acceptance of the case.

PERSONAL HISTORY.

The points relative to this branch of our subject are included under the questions, on the form of application, of *age, residence, occupation, previous diseases, habits of life, and vaccination.*

Age. Very little insurance is sought upon lives below the age of 15, or above that of 70, and all companies base their tables of rates so as to take risks between these ages, without reference to variations of mortality which occur within these two periods of life generally. Age, therefore, becomes a matter of importance chiefly in its relation to the prevalence of certain forms of disease. A healthy person, after reaching 25 years, usually is in a condition of body to resist morbid influences, and endure much greater hardship and fatigue, without unfavorable consequences, than before he reaches the age of 20 years. The system, generally, attains a fullness of strength and capacity, at about that period, which formerly it had not possessed, and, with regular habits of life, and ordinary health, it retains this capacity until about 60 years. A risk, therefore, other things being equal, is better between these ages than during an earlier or later period.

Again, it is known that consumption prevails more especially between the ages of 20 and 40, and that after the subject, having a hereditary tendency, passes the age of 40, the danger that he will become affected diminishes rapidly till the age of 50 or 55, when it may be considered as practically past. In this relation, it is important to note the age at which the parent died, and if the applicant has already attained to, or passed this age, and still possesses a robust and well developed frame, his chances of escape increase rapidly, as his age increases. For instance, if the immediate relative died at the age of 30, and the applicant has reached 40, his danger has nearly or quite passed. In all cases, I think the danger of death by hereditary, transmitted consumption, may be considered as passed at 50 years. Articular rheumatism, also, prevails more especially between the ages of 15 and 40, though individual cases occur both earlier and later in life; on the other hand, apoplexy rarely occurs before the age of 40, and more cases occur between the ages of 55 and 70, than during any other period of life.

Residence. The question of residence becomes important to the examining surgeon

only when his professional opinion is specially sought in individual cases as to the salubrity of certain climates. The greater risk attending residence in hot and malarious districts is so well understood, that special rates are added to the ordinary, for such residence, by most companies; and it becomes of particular importance when the proposer is to go from a residence in a cold to one in a hot climate, the process of acclimation being in many cases attended with no little illness and hazard to life.

Occupation. The general subject of occupation, in its relation to health, is one of much interest and importance to insurance companies, and it is to be exceedingly regretted that we possess no statistics in this country showing the relative mortality of the several trades and occupations. Enough, however, is known upon the general subject to render some observations desirable. There are certain avocations which appear to be so unhealthy in their nature, as to render it necessary either to reject those who follow them, altogether, or insure them upon a largely increased premium. Among these we may mention,

FIRST. *Knife and fork, axe and scissor grinders.* The exceeding smallness of the par-

ticles of metal given off by the operation of grinding is such, that they at once penetrate to nearly all parts of the lung, being admitted into the finest air passages; their form is such, that they easily penetrate the mucous membrane of the air passages, and, soon, the parenchyma of the lung, where they remain permanently imbedded, and as the quantity of these particles increases, they present all the irritation, inflammation and ultimate ulceration, which is usually caused by the deposit of tubercle, but with this difference, that the deposition of material is more rapid, while its nature is such, that it does not break down or change, and consequently is not readily expectorated from the lung.

SECOND. *Stone masons, colliers and workers in ivory and bone.* This class of labor is not so rapidly fatal, as that just referred to, for the reason that the coarseness of the particles renders them less liable to penetrate to the ultimate ramifications of the lung, and their form renders it more difficult for them to penetrate the substance of the lung; they, consequently, are more readily raised with the expectoration. Their presence, however, in the air passages, causes much irritation, and the result in time

is quite similar to that attending the occupation of those grinding iron and steel.

THIRD. *Painters, and workers in white lead and phosphorus.* The effects produced upon persons engaged in these occupations are not quite so well marked and fully recognized as those of the two preceding classes, but in many cases, it becomes conspicuous enough. Painters, and those in the daily use of lead, often present themselves to the examiner, having experienced symptoms of poisoning. If the characteristic blue line is upon the gums—if colic or local paralysis is now, or has been, present, the risk is undesirable, especially if the party is unable to change his employment. The effects of phosphorus and arsenic are also witnessed in the necrosis of bone, and debility of the alimentary system. Therefore, as a rule, persons engaged daily in any of the above-named occupations, and dependent upon their labor for subsistence, are undesirable risks.

Other Occupations. There are some other occupations which, taken in connection with a system having a taint of scrofula or consumption, should cause the rejection of the risk.

Among these, may be mentioned those involving a confined or stooping position, such as shoemakers, tailors, etc. These persons, generally, are confined many hours during the day in a close and heated room; they take, comparatively, little exercise in the open air, the lungs are hardly expanded freely from one week's end to another, and any latent tendency to lung disease is quite sure to be manifested before the age of 40 years.

*The Registrar-General of England has published some statistics which exhibit the relative mortality of several occupations, including, among others, those of the farmer, shoemaker, blacksmith, tailor, miner, baker, butcher and inn-keeper. From this table, it appears that there exists an increase of mortality, during certain ages, from the farmer up to the baker, butcher and inn-keeper, it being the highest in the last named occupation. The extremes of heat and cold to which the baker is constantly exposed, besides the vegetable emanations he is continually drawing into his lungs, would certainly appear to be sufficient reason for the shortness of life expectation in his case. The occupation of the butcher, however, has generally been supposed,

at least by unprofessional persons, to be one rather conducive to health than otherwise, so much so, that, not unfrequently, persons of delicate constitution, and who have been engaged in sedentary occupations, change to this, with the view of improving their health. In some cases, doubtless, benefit has been experienced, but the logic of figures is not easily set aside, and we must, therefore, seek for such explanation as may be found in the nature of the occupation; and certainly we need not travel very far from their slaughter-houses, if they are kept in a sanitary condition similar to many of those in this country, to find abundant cause for the high rate of mortality. To explain the brevity of life expectation in the case of inn-keepers, no other cause presents itself to my mind than the great danger they are constantly in of becoming intemperate; perhaps, no other need be assigned.

A report on the sanitary condition of London for 1855-6, presents a somewhat, though not materially, different result. * "The expectancy of life among young men generally at 20 years, is up to 60. You will perceive that this is nearly the expectancy in London, with shop-keepers and domestic servants, for

*Ward.

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 of blacksmiths, gas-fitters, and the workers in the coarse metals generally; while publicans, wine merchants, waiters, tailors, laborers 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 48 years. A like difference exists in the longevity of females; for, while the wife of the shop-keeper 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 44·2 and 48 years of age, and, worse still, the poor needle woman sinks into the grave at 42·6 years of age."

Previous Diseases.—Some diseases produce so profound an impression upon the system during their existence, that they leave its powers permanently impaired, and the capacity for resisting the general influences of occu-

pation and climate, remains, ever afterward, below that which ordinarily exists. Other diseases, having once existed, are very likely to recur, and continue their recurrence until the natural vigor of the system becomes seriously and permanently affected. Others, still, not unfrequently, produce lesion of certain organs, which remains, compromising the life of the individual, though he may not again be affected with the same disease. It therefore becomes a matter of much importance to have as full a statement, in relation to any previous illness, and symptoms of organic disease which may have existed, as will enable the officers of the company to decide intelligently relative to these influences. The list of questions upon the form of application is tolerably full, and it will not be necessary to remark upon the influences of each in detail. I shall, therefore, refer to the most important only, and in as brief a manner as possible.

Diseases of the Nervous System—Apoplexy, Paralysis, Epilepsy, Insanity.—There can be no question as to the propriety of rejecting the case, when the applicant has suffered from any of the above named diseases; and, inasmuch as the tendency to them is frequently

transmitted from parent to child, whenever any of them are known to have existed in the family, we may examine carefully for such indications as are frequently manifested previous to an attack of acute disease; and whenever we find the applicant has suffered from attacks of vertigo, cerebral congestion, sudden fainting, or partial loss of consciousness, habitual headaches, etc., the risk should usually be declined.

Diseases of the Respiratory System—Spitting of Blood, Bronchitis, Asthma, Habitual Cough.—There can exist no indication of consumption that causes the physician more anxiety, when it has once occurred, even in never so small a quantity, than the spitting of blood. All understand that this is not generally one of the primary symptoms of this most grave malady, but only occurs after it has considerably advanced in its course. It has been preceded, in the majority of cases, by a troublesome cough, failure in the assimilative powers of the system, the deposition of tuberculous material in the parenchyma of the lung, inflammation and consequent ulceration extending to the blood vessels. Before such a condition can exist in the lungs, a profound impression

has been made upon the whole system, and any remedial measures used to restore the health permanently promise but little success. The primary indications of tubercle have existed in many cases, and yielded to judicious medical and hygienic treatment; the disease may have advanced even to ulceration and then been checked, leaving many years of comparative health; nor is hæmoptysis itself necessarily, in all cases, a fatal symptom; but we understand that where one recovers who has suffered from it, the vast majority die sooner or later from its effects: in fact, so few survive any considerable number of years, that all such must be considered as absolutely ineligible to life insurance. It is understood that some companies accept such risks after the lapse of a certain number of years, provided the applicant has been in good health. We cannot recommend this course, as we believe the disease still exists in a latent form, and only requires the advent of unfavorable personal circumstances to develop it into activity.

An affirmative reply to this question is sometimes made, when the blood has evidently come from the mucous membrane of the posterior nares, or the pharynx, or has been the

result of straining or lifting; others reply in the affirmative when they have only raised bloody sputa during an attack of pneumonia. This of course occurs through a mistaken idea, on the part of the applicant, as to the meaning of the term, and in all cases should be explained by the examining surgeon. I need hardly add, that any indication of consumption, however slight, which may discover itself, either by the present condition of the system, or by hereditary influence, should lead to an unusually careful examination of the respiratory system. In fact, so large a percentage of all persons die of this disease, that this part of the examination becomes, in my opinion, by far the most important of any, requiring a delicacy of touch and an education of the ear, which can only be obtained by patient application guided by competent instructors.

Pneumonia, when single, does not usually so far enfeeble the powers of the system, or leave such effects upon the lungs, as to materially impair the risk; when, however, the disease has embraced both lungs, or has existed single two or three times, or when it has been combined with pleuritis, leaving extensive adhesions, the case becomes objectionable.

So, also, of *bronchitis*, if the proposer has suffered from the disease only in a slight degree, and as the result of occasional colds, the fact is of minor importance; but when the party has frequently been affected with it in its severer forms, or it has become chronic in character and attended with cough, the tendency is, of course, to the parenchyma of the lung, and the life had best be declined.

Asthma, simple and uncomplicated, is of comparatively little importance; we, not unfrequently, meet with persons who have inherited the disease and suffered more or less frequently from it all their lives, with little or no inconvenience, except during the attacks, and such persons usually die of some other disease; but in all cases it is safe for the surgeon to presume that some complication exists, and satisfy himself that there is present no disease of the heart or other disease of the lung, in the form of chronic bronchitis or emphysema, before he decides to advise the risk.

Other Diseases. The occurrence of *articular rheumatism* in the earlier history of an individual becomes important for two reasons: first, the danger of its recurrence; and, second,

its possible effects upon the heart and surrounding structures. In cases where the disease is hereditary, either parent having been affected with it, the probability of a second or third attack is much increased, and when to this tendency is added the influence of such an occupation as necessitates the effects of sudden changes from hot to cold air, or the influence of wet clothing, or cold, the company should receive the benefit of the circumstance. I need hardly refer to the importance of a careful examination of the heart and its structures, in all cases where the applicant has suffered from one attack of acute rheumatism, bearing in mind that the danger of lesions of this organ and of the recurrence of the disease is much increased when it has existed prior to the age of 20.

Whenever, in the history of an applicant, *dropsy* has occurred once or more, a careful examination into the condition of both the heart and kidneys should be instituted, and the urine should always be tested, that the absence of renal affections may be made certain.

The influence, and in many cases, the cause of *ulcers* or sores discharging matter, is not so well determined, but in most or all cases of

long standing, they imply debility of constitution, and impair the risk. Dr. Brinton says, 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, or both. Lastly, while they may at any time take an 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 form a channel for the reception of exanthematous disorders."

Hernia becomes important only when it is extensive in character, or double. From the "Memoranda for Effecting Life Assurance," it appears that of 799 cases of rupture which were admitted into the hospitals of the British army during a period of some 20 years, only 10 died, or one in about 80 cases. The condition of a soldier in the British army would

certainly appear to be quite as unfavorable to life in such cases, as in ordinary avocations; still, where the rupture is large and with difficulty retained by an ordinary truss, or when the nature of the occupation is such as to render a strangulation especially liable to occur, the risk is undesirable. The same is true in cases of double hernia, even if it be of slight extent, as such a lesion implies so great a laxity of fiber and structure in the system, that the rupture is very likely to be increased by over exertion or sudden movements.

One of the questions usually found in all the forms of application is, whether the applicant has suffered from any *severe injury*. This question becomes one of considerable importance in this country at the present time, on account of the large number who have suffered amputation of limbs for gun-shot injuries received during the recent war; or from injuries affecting the skull and spinal column, received by railroad accidents. In all cases where both tables of the skull have been injured, and depression, with any of its consequences, has existed, the risk had best be declined, even though all effects have passed away, so far as the present sensations of the individual are concerned. The same is true

of injuries of the spinal column, in case any deformity exists, or portions of any of the vertebræ have been absorbed through the influence of subsequent inflammation. The amount of influence exerted upon the system, permanently, by the loss of a limb, is not very easily determined. It depends primarily, upon the healthiness of the individual, the strength of constitution, and the amount of limb lost. Frequently the exigencies of the case were such, in the late war, that, after receiving the injury, the person remained upon the battlefield, exposed to the influences of heat or cold, during many hours; and while in a comparatively prostrate condition, was obliged to endure the additional shock of an amputation; then followed the suffering and drain upon the system during two or three months, as the case might be. Certainly, in most such cases, the capacity of the system for resisting unfavorable influences, must be materially diminished. The same is measurably true of those who were so fortunate as to receive early attention, and the best care, the nature of the circumstances, and the exigencies of war allowed. The subsequent effects upon the constitution in all cases, would depend, other things being equal, upon the amount of limb

lost; and in this connection we should endeavor to estimate how far this loss of limb incapacitates the person from exercising efficient care of his person, and protecting himself from accidental injury. As a rule, it appears to me to be due to the interests of the company to decline cases in which the amputation has been at the shoulder joint, or above the knee joint, while in other cases, the nature of the employment, the physical constitution, and the previous history, must be consulted in forming a decision.

Habits of Life.—“Are the habits of the person correct and temperate”? Very few individuals are willing to admit to others, or themselves even, that they are intemperate; the boundary line between temperance and intemperance is rarely passed by any one in his own opinion. Consequently, with very few exceptions, the above query is answered in the affirmative. In all cases, therefore, in which any suspicion may arise, either from personal appearance, or other reason, the point should be determined by a cross-examination, or by inquiry among acquaintances of the applicant, or both. The extent of influence exerted by intemperate habits, is thus referred

to by Dr. Ward in his work upon Life Assurance: "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."

The quality and effects of liquor used in this country, certainly do not warrant us in looking for any longer expectation of life in persons of intemperate habits, than from the above abstract appears to exist in England. The general effects of intemperance upon the system, and the diseases it is likely to produce in the stomach, the liver and the nervous system, need not be discussed at this time. Intemperate lives are not desirable risks. When persons have reformed, who have been intemperate, at least from 5 to 10 years should be allowed to test the genuineness of the reformation; and it is doubtful, if even then, the deleterious effects of former excesses will have ceased. Such cases are understood to be declined by many English companies, or, if accepted, a higher rate of premium is charged.

PRESENT HEALTH.

We now come to the last branch of our subject, namely, that pertaining to the *physical condition* of the applicant at the time of ex-

amination. The leading points of inquiry, to be embraced in this examination, are indicated upon the printed form of the certificate for the medical examiner, and vary in their order and arrangement according to the design or taste of the company issuing them. I do not propose in this part of my paper to so far presume upon the disqualifications of medical examiners, as to present any special instructions as to the manner or order of conducting the examination, suggesting, simply, that the party to be examined be free from undue mental or bodily excitement and fatigue.

I shall, therefore, confine myself to a few observations upon the relative importance of some of the personal peculiarities or conditions which may be found to exist, in their relation to the desirability of the risk. And here it may be important to caution the examiner against relying too much on the absence of *physical signs* of disease in forming his opinion as to the desirability of a risk. It is well known that in some cases the most critical examination will fail to detect the presence of disease, by purely physical signs, and yet the rational indications be such as to convince the surgeon that disease either already exists, or is soon likely to do so. In

such cases a statement additional to the regular certificate should always be forwarded, containing the reasons for the opinion formed, so far as may be necessary.

Age. While the expectation of life in the general population, at the age of 60, is as accurately determined as at any other period of life, there appears to me to exist an uncertainty in some cases, in the absence of any disease or lesion that can be detected by physical examination, which does not pertain to persons in general. This is true, especially of those persons whose systems have been accustomed to the exposure arising from great extremes of heat and cold, or to the prolonged influence of a laborious occupation, or to the influence of intemperate habits at a former period of life. Doubtless, those who have been engaged in such occupations as do not require severe toil or physical exertion, or in pursuits of an intellectual character, enduring little exposure or hardship, at the age of 60, still possess comparatively strong constitutions, and have fully the ordinary expectation of life; while those who have been surrounded by the unfavorable circumstances above referred to, have already passed the summit of life at 50 or 55, and at

60 are quite far on in life's decline. In such cases the effects of disease, when once it appears, are much more severe, and doubtless "the decay of old age" proceeds more rapidly, even in the absence of disease, than when the person has been surrounded by the ordinary circumstances of life.

Weight becomes a matter of importance in its relation to *height*. A full, rounded and well nourished frame indicates a healthy condition of the alimentary system, and, other things being equal, such a risk is to be preferred to a lean, thin and ill nourished one. Dr. Brinton lays it down as a rule "that an adult male in good health, 66 inches in stature, ought to weigh rather more than 10 stone, or 140 pounds avoirdupois. And for every inch above or below this height we may respectively add and subtract about five pounds. The variations specific to the individual (often indeed to a family) take so wide a range that it is difficult to assign them any precise limit. But, as a rule, 20 per cent., or one-fifth, is almost the maximum variation compatible with health. In other words, if our subject of 66 inches in stature weighed more than 12 stone, or less than 8, we should be entitled to look upon him

with great suspicion." It appears to me, however, but just, in all cases where the weight exceeds the standard as expressed in the above rule, that the *occupation and habits of life* should be taken into consideration. A person of active, vigorous habits, accustomed to much exercise in the open air and leading a strictly temperate life, would be considered a desirable risk, even if considerably above the maximum weight indicated, while one leading a purely sedentary life or addicted to the moderate use of alcoholic beverages would not, if considerably below such standard. The objections to a person much inclined to obesity will readily present themselves to the mind of the surgeon, and need not be referred to. In all cases in which the weight of the person of the supposed height comes barely to the minimum, or even considerably above it, the attention of the surgeon should be directed especially to the alimentary and respiratory systems, with the view of determining the probability of active or nascent disease, in one or both.

The *general appearance and complexion* become important as indicative of the habits of life, and tendency to any peculiar diathesis. The object of the surgeon should be to pre-

sent as faithful and accurate a description of the applicant as may be necessary to enable the officers of the company to act intelligently in accepting or declining the risk. A few words or sentences, descriptive of the form, whether full, symmetrical, upright, or otherwise; the complexion, whether clear, ruddy, healthy in appearance, or sallow, bloated, or pale, indicative of scrofula, cancer, intemperance, or dyspepsia; together with the kind of temperament, whether bilious, sanguineous, nervous, or a combination of these, are of much assistance in presenting such a description. The surgeon in no case is required to limit himself to the blank form of certificate, and whenever the proposer possesses peculiarities, should add a note descriptive of them.

A full, deep, and well developed chest is a matter of much importance, indicating power of endurance, and capacity of resistance. On the other hand, one with high shoulders inclined forward, narrow anteriorly and flat, and with limited power of expansion, indicates debility. Lung capacity varies according to height, and of course is determined only in a very imperfect degree, by external measurement. This, however, is the only means usually at hand, and a little instruction is not

unfrequently necessary before the person understands the manner of expansion so as to indicate its full amount; after this, it seems important that all persons of medium height, especially those of sedentary occupations should be able to expand at least from $1\frac{1}{2}$ to 2 inches, when the tape is adjusted between the 2nd and 3rd ribs, anteriorly, and below the lower border of the scapulæ, posteriorly. Any less amount would imply incapacity for perfect aeration at the apices of the lungs, and in some cases would be an indication of diffused tubercle.

The frequency of respiration, relative to that of the heart's action, becomes important not unfrequently, as an indication of incipient disease. It is generally considered a rule, that the proportion should be one of the former to 4 or $4\frac{1}{2}$ of the latter; and when this proportion is much disturbed, the cause should be determined if possible. Increased respiration is one of the earlier indications of tubercle, and is frequently observed before any variation in the heart's action is noticed. When both exist, except as the result of excitement, the life should, at least, be deferred for another examination. It also exists as a result of chronic hepatization of a portion of the lung,

and such deformities of the chest as diminish its capacity of expansion.

The rate of the pulse varies according to temperament, habits of life, nationality (?), and in some cases, individual peculiarities. Its range in health may be estimated as between 60 and 85, in this country, and when either above or below these numbers, the fact should lead to a careful examination, for the cause; a high pulse indicating disease of the circulatory or respiratory system, debility, or nervous excitement, while a slow pulse is indicative of hepatic obstruction, or organic disease of the nervous system. *Intermittent pulse*, when occurring in young persons, should always be looked upon with suspicion. In some cases it occurs without organic lesion, and may be a result of the inordinate use of tobacco, or hepatic obstruction, while in others, it implies more than functional disease. It occurs, however, not infrequently in elderly people, and may imply either general debility, or ossification of the arteries. Generally, unless it can be clearly traced to an idiosyncrasy, and proved to have existed for years, the risk should be declined. In case it is functional, and evidently owing to indigestion, or exces-

sive use of tobacco or tea, the risk may be temporarily deferred.

It will be perceived, that in forming an opinion upon the desirability of a risk, not unfrequently a large number of elements enter into the calculation. In the combining and arranging of these points, no small amount of difficulty is often experienced, and the surgeon is at a loss in making a decision. It will be well to bear in mind, that after a rigid examination relative to the points indicated upon the blank, and a statement of the exact condition of present health, the most important part of the duty pertaining to the medical examiner, is accomplished. It is required, however, that he state definitely his opinion as to the desirability of each risk, based upon the statements made in the application, as to family and personal history, and the rational and physical indications of health. The ultimate disposal of each case must be determined by the executive officers of the company, aided by the consulting surgeon.

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