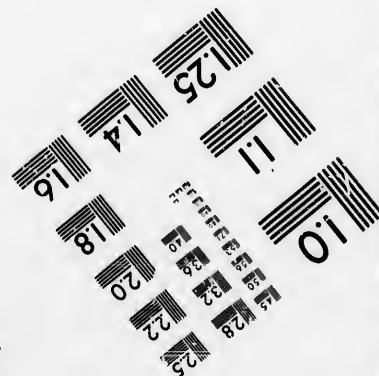
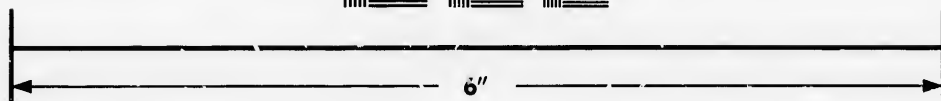
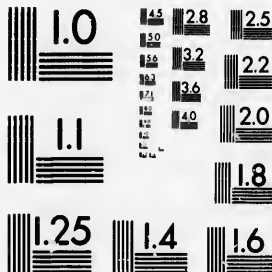


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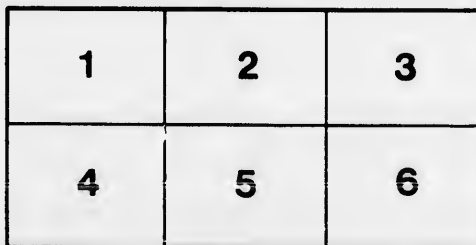
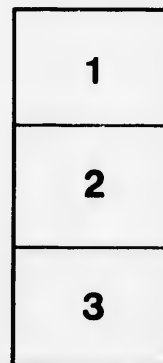
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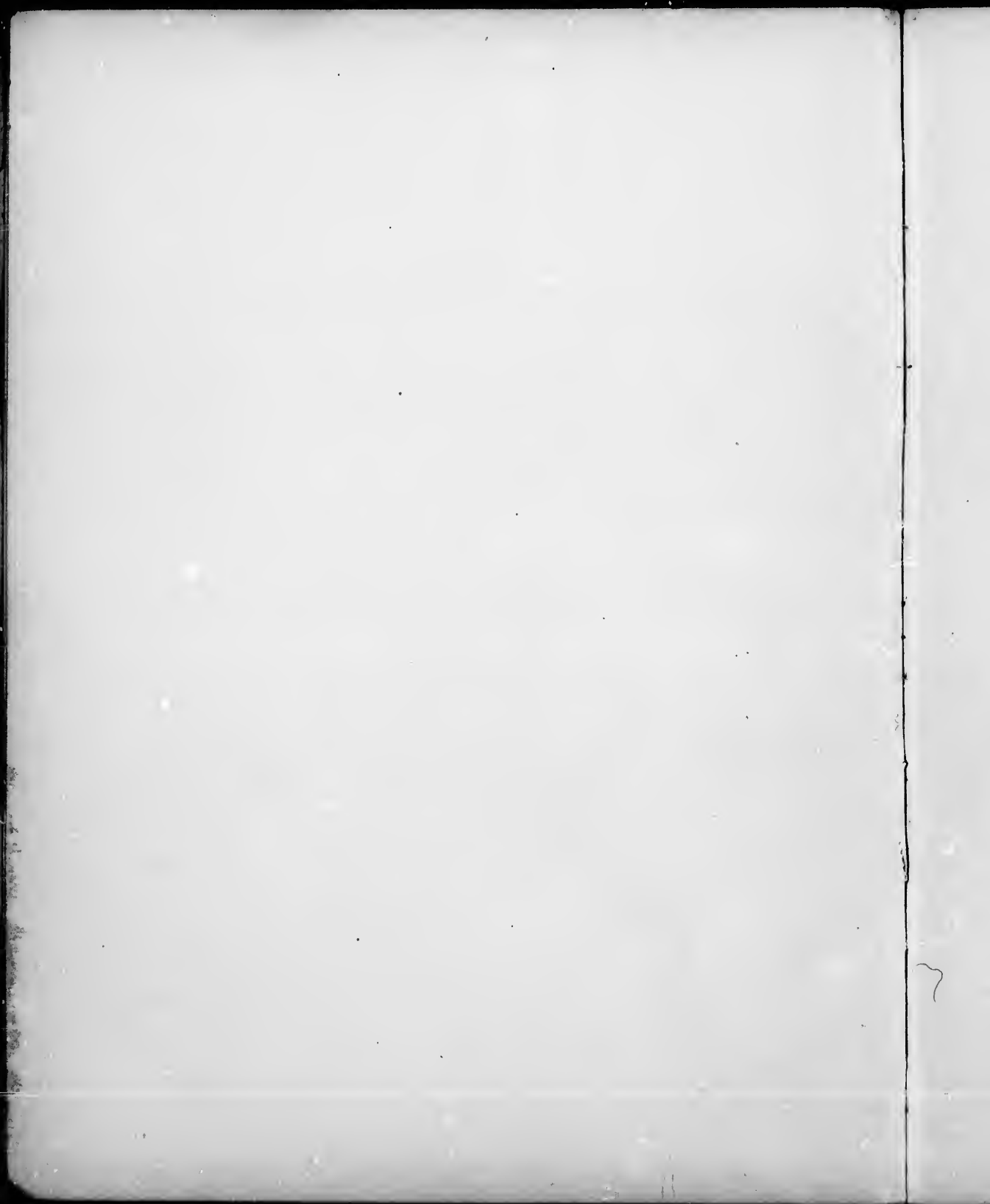
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MANUAL

— OF —

LIFE INSURANCE EXAMINATIONS

BY

JAMES THORBURN, M.D. EDIN.,

**Emeritus Professor of Pharmacology University of Toronto ; Consulting
Surgeon Toronto General Hospital ; Medical Director
North American Life Assurance Company, etc.**

**SECOND EDITION
REVISED AND EMENDED**

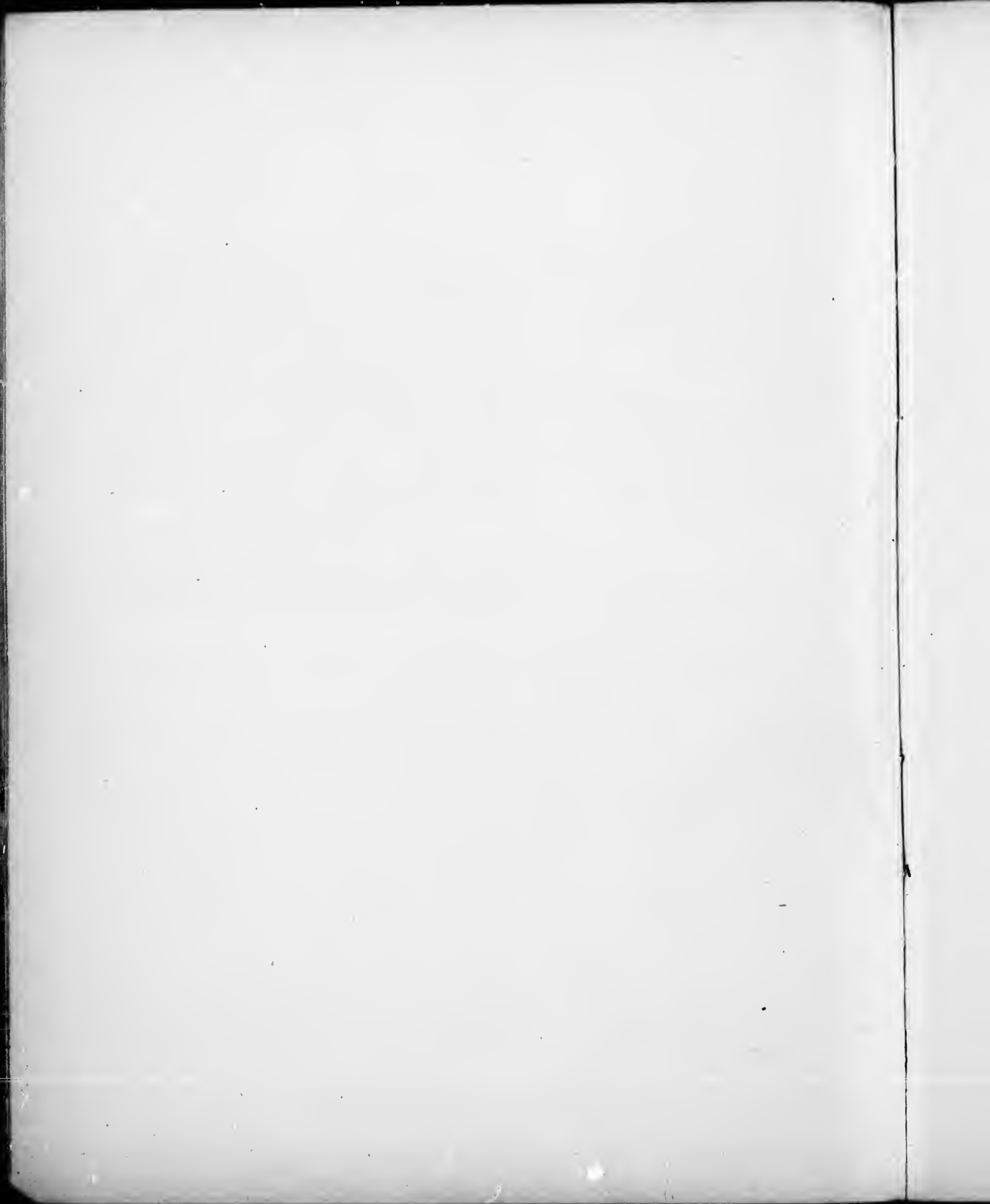
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The first edition of the *Manual of Life Insurance Examination* was issued in 1887, and was specially prepared for the convenience of the Medical Examiners of the *North American Life Assurance Company*, but has been found of practical value by the Medical Officers of kindred Companies. This second edition has been revised and largely emended.

November 1st, 1895.



LIFE INSURANCE EXAMINATIONS.

I.—MEDICAL EXAMINERS.

The blessings accruing to society and individuals from Life Insurance are manifold, and much is due to the medical profession in removing it from the realm of mere conjecture and placing it upon the solid foundation upon which it now rests.

The success of every Life Insurance institution depends directly upon the duration of life amongst its insurants, proving to be at least equal to that assumed in the calculations of the actuary. Nothing is more uncertain than the duration of any individual life, but there are few things less subject to fluctuation than the average duration of human life, when the observations are extended over a large number of individuals. Without medical selection, the death rate among insured persons would doubtless be greater than in that of the whole population, as a large number of diseased persons would enter; but by a selection excluding not only those who are actually diseased, but all those who are constitutionally or otherwise pre-disposed to disease, the death rate is decreased. It is obvious that without trustworthy medical selection, the most careful calculations upon conservative assumptions must prove disappointing in practice; hence the examination of applicants for Life Insurance is one of the most important duties undertaken by a physician.

High professional attainments are not sufficient in themselves to qualify a physician to act as an examiner; he must possess sound judgment, the power of keen observation and the faculty of weighing

each and every departure from what is termed health, and above all, he must be a man of strict integrity and honour, and must not be influenced by favour, fear or affection.

Many medical men can diagnose and prognose disease with a degree of certainty, but when called upon to express an opinion as to the "expectation of life" of an applicant for insurance, are unable to decide, not having made the subject a special study.

The following pages are intended to call the attention of the Medical Examiner to the more important details which assist in determining whether individual lives will probably survive or fall short of their life expectation.

Appointment.—It is premised that the appointment of the Medical Examiner is exclusively made by the Medical Department at the Head Office of the Company. No agent has any right to promise or make such appointment. The importance of this is evident,—the Examiner must be free and independent of local and other influences, and responsible only to the Medical Department. The importance of the function he performs emphasizes this fact, and the Company, relying upon his judgment and honesty, assumes or declines heavy financial obligations.

Fees.—The fee for medical examination is \$4.00 where the amount of insurance is under \$2,000; where \$2,000 and over, the fee is \$5.00. The medical examination includes the testing of the urine. Extra fees for travelling or other expenses will not be recognized by the Company, but must be mutually arranged by the Medical Examiner and agent.

II.—THE APPLICATION.

The purpose of the examination is to determine the condition of the applicant's personal health, and whether or not he is constitutionally or otherwise pre-disposed to disease. To this end, when

he presents himself for examination, the Medical Examiner should read over and carefully weigh the several answers to the questions put by the agent on Form A of the application, take note of any peculiarities in the personal or family history, of any general and of indefinite statements regarding deaths, such as "general debility," "cold," "ruptured blood vessel," "slow fever," "child birth," "change of life," etc. These terms are found from experience to be very generally associated with phthisis in some of its various forms; hence the importance of analyzing the answers, and thus being able to give not only positive, but negative evidence as to hereditary pre-disposition. For instance, in the case of the answer "child birth," ascertain if the woman was in good health previous to pregnancy, and during that condition, and also up to confinement. Did she have a difficult labour? How long did she live after, and was there any fever, etc.?

III.—THE EXAMINER'S REPORT.

Name.—Satisfy yourself that you are examining the person named and described in the application which is before you. The importance of this has been frequently shown, impersonation has been successfully accomplished, and insurance companies defrauded. If you have any doubts, compare the signature of the person whom you are examining with the signature of the applicant for insurance, on the reverse side of the application form.

Residence.—Whether healthy or otherwise? A damp atmosphere with variable temperature is conducive to consumption, rheumatism, etc. Residence in malarious districts give rise to fevers which may prove injurious to the constitution.

As a rule the inhabitants of the country are better risks than those of towns or cities. A temperate climate is conducive to longevity.

We must not, however, be too dogmatic as to the influence of climate, as man can and does acclimatize himself readily.

Occupation.—Occupation has an important bearing on the duration of human life. Is that of the applicant healthy or injurious? As a rule, those persons whose business necessitates their being out of doors (unless attended by special dangers) are better risks than those who are compelled to work indoors.

This rule is governed by circumstances; persons living habitually in an impure atmosphere are more liable to disease than those who, though following sedentary occupations, have healthy surroundings. The exact nature of the work engaged in should be specified by the Examiner.

Applicants have been divided into the following classes, according to their occupations, viz. :

FIRST CLASS.

- (a) Professional men, Teachers, Clergymen, Lawyers and Physicians.
- (b) Certain classes of Mechanics and Artisans, as House Painters, Blacksmiths and Carpenters.
- (c) Booksellers, Clothiers and Merchants.
- (d) Dentists, Druggists and Apothecaries.
- (e) House Decorators, Agricultural Laborers and Gardeners.
- (f) Clerks, as Bank and Insurance Clerks, etc.
- (g) Printers.

SECOND CLASS.

- (a) Certain of those employed by Railway Companies, as Baggage Masters, Conductors on Passenger Trains and Railroad Detectives.
- (b) Certain Artisans and Mechanics, as Boiler Makers, Bolt Makers and Bricklayers.
- (c) Certain persons who work on Boats, as Canal Boatmen.

- (d) Men handling Horses, as Teamsters, Stage Drivers and Stable Keepers.
- (e) Certain others, as Prison Guards.

THIRD CLASS.

- (a) Certain men employed on Boats, as Captains of Lake and River or Sea Vessels, Engineers and Mates.
- (b) Certain Artisans and Mechanics, as Timber Cutters, Bridge Builders and Steel Polishers.
- (c) Those employed in the Liquor Trade, Bartenders, Saloon Keepers and Brewers and Distillers.

FOURTH CLASS (EXTRA HAZARDOUS).

- (a) Certain employees on Railways, as Brakemen on Mail Trains, Engineers and Switchmen.
- (b) Certain Artisans, as Sawyers and Powder Makers.
- (c) Brakemen on Freight Trains and Seamen.

Applicants in the first and second classes are insurable at ordinary rates, while those in the third class on short endowments. Those in the fourth class are uninsurable on any terms.

Age.—For convenience sake we may accept the old divisions, viz, age of growth and development, age of maturity and manhood, and the period of decay or old age. Each of these divisions is liable to special diseases.

- (a) The rate of mortality in the first period is much greater than in the subsequent.

With the early part of this period we have little to do inasmuch as applications are not generally received from persons under 17 years of age.

With the latter portion of this period, between puberty and twenty-five, the various organs rapidly develop, and individuals are prone to inflammatory and rheumatic affections, typhoid fever, etc.

(*b*) In the second stage—that of manhood—which may be stated to be from twenty-five to forty-five years of age, the various organs of the body have become fully developed, and during this term man is better able to stand the fatigues and exposures of life than at any other time; and therefore the best risks for insurance are generally to be found within these years. The Examiner, however, must be on his guard against exceptional cases between these years where careful attention and improved sanitary surroundings have prolonged the life of those naturally weak.

(*c*) During the third stage—that of decay, the physical powers show deterioration. Phthisis may develop. Diseases of the nervous and sanguineous systems are more common, such as apoplexy, paralysis, etc. The liability to accident is also increased.

Race.—The mixture of races, in many instances, impairs the vigour of the body. The offspring of the indian and white, as well as that of the negro and white, are particularly prone to tubercular and other diseases, and as a consequence, their chances of life are reduced, hence the importance of reporting the race to which the applicant belongs.

Figure.—An erect figure, with due proportionate measurements, is generally indicative of health; the opposite condition often indicates some weakness.

Eyes.—The colour of the eyes is important as a mark of identification, but their appearance also often indicates the health of the person examined. A dull, listless eye, especially in the young, points to a sluggish constitution. A red or yellow conjunctiva is frequently caused by intemperance. The presence of

arcus senilis in the second period of life is indicative of, and is frequently associated with fatty degeneration of the internal organs, especially the heart, kidneys and liver. A puffiness of the eye-lids points to disease of the kidney; a yellow, or stained conjunctiva, to disorder of the liver. These conditions, as well as any organic changes in the eye, should be reported.

Skin.—In health, the skin is soft and pliable and free from eruptions, especially of a specific nature. Notice should be taken of any peculiarity in colour; a pale anæmic skin denotes an impoverished condition of the blood. A dark or livid colour points to obstructed circulation, or imperfect aeration, and is frequently caused by intemperance. Any departure from the usual standard colour of a healthy skin, as the pigmentation which occurs in Addison's disease and the coloration of the skin which takes place in those who habitually use nitrate of silver, should excite the suspicion of the Medical Examiner.

Bones.—In persons of a tuberculous diathesis, the ends of the bones are generally disproportionately large. Persons with small bones are not, as a rule, capable of enduring great exposure or fatigue. Ascertain if the bones afford any evidence of rickets or nodes, rheumatism, gout or syphilis.

Deformities and Physical Defects.—Defects of the organs of special sense should be inquired into, such as deafness or blindness, and the cause of such conditions should be ascertained. If deafness be present, is it the result of disease? Deformities, such as curvature of the spine (lateral or angular), are objectionable; exceptional cases may be considered favourably.

Has the person ever had any of the following ailments?

Aneurism.—Aneurism may exist without the patient's knowledge; it may be of the heart, the aorta, or any other part of the circulatory system. It may be so large, as to cause bulging of the

parietes before its peculiar and distressing effects are developed ; a careful physical examination would reveal this condition. Its presence is sufficient cause to reject an applicant.

Apoplexy.—A person who has had *true* apoplexy, no matter how remotely, is ineligible for life insurance.

Asthma—Must be valued according to the cause which produces it. Those cases of asthma arising from idiosyncrasy, such as rose or hay asthma, or that are dependent upon local atmospheric conditions, are not a sufficient cause to disqualify the applicant from some forms of insurance ; but the asthma which arises from organic lesion, such as cardiac obstruction, tuberculosis, emphysema, bronchitis, thoracic tumors, hepatic and kidney disease or disease of the nerve centres, is sufficient cause for rejection.

Bad, or frequent Head-Aches—May arise from a variety of causes ; when from functional disturbance, or the influence of malaria, it may not be a bar to insurance ; but when arising from organic lesion, particularly of the nerves, it is a most grave symptom, and necessitates a careful examination. The duration and severity of the symptom has an important bearing on the Examiner's decision. Some people suffer from head-aches, more or less continually, and do not seem to be in impaired health ; everything else being satisfactory, they may be considered favourably. Again, head-ache, if recent, may be indicative of some febrile or organic disease ; in such a case defer your report and re-examine on some future occasion.

Bilious Colic.—Bilious colic, when of frequent occurrence, and attended by painful symptoms, lessens very much the value of the life. A single attack, with an intervening period of four years without other unfavourable symptoms, would not diminish the eligibility of the applicant for insurance.

Bronchitis.—The presence of bronchitis is always a serious matter, especially if in a chronic form, or of frequent occurrence. Such cases are often dependent upon tubercle, inflammation of the parenchyma of the lung, cardiac or renal diseases. If the bronchitis be associated with any of the foregoing conditions, the applicant should unhesitatingly be rejected. When bronchitis is due to reflex irritation, or other causes which may be amenable to treatment, decision must be postponed for further examination.

Cancer.—The existence of cancer in an applicant is sufficient cause for his rejection. There can be but little doubt of the hereditary nature of this disease and also the tendency to recurrence after operation. Cancer (Carcinoma and Carcoma) occur in both male and female, and more especially at advanced periods of life.

Catarrh.—The term catarrh as used in this manual means an affection of the nose or throat. When it exists in a simple form it is of little importance; but if it be constitutional or associated with bone destruction; which as a rule is owing to syphilis or tubercle, the applicant must be rejected.

Consumption.—Deaths from consumption are more common than from any other disease, and therefore a most careful and searching examination must be made by the Examiner where it is suspected. He must inquire if there are any predisposing causes, of a hereditary or acquired nature. Deaths from consumption, compared with the general mortality, are decreasing in the earlier periods of life. This is probably due to the fact that of late years more regard has been paid to sanitation, and to the improvement in the social condition of the people.

A morning cough with hoarseness, a sense of weakness without any particular assignable cause, loss of weight with a frequent pulse, and especially if there has been hæmoptysis, even of the slightest

degree, are strongly indicative of phthisis, although the physical signs of the disease may not be well developed.

General appearances are sometimes deceptive. Persons in seemingly good health may have the disease; if it be present a microscopical examination of the sputum will reveal the presence of tubercular bacilli.

Delirium Tremens.—If the applicant has ever had delirium tremens, the life is much imperilled; its morbid impress is left on the system, and the danger of its recurrence is considerable. A long interval of time should elapse before such an applicant should be received, and there should be strong evidences of moral reform.

Diabetes.—While the pathology of this disease is still undecided, its symptoms are well known. A person suffering from it is ineligible for Life Insurance. The presence of a slight trace of sugar in the urine may be due to temporary functional causes. Re-examinations, extending over a lengthened period, would be necessary before a satisfactory conclusion could be arrived at.

Diphtheria.—This disease is frequently followed by impaired nutrition and nerve power. It may also lay the foundation for tubercular deposit in the lungs, or may give rise to nephritis, or more or less permanent paralysis.

Dizziness.—Is often indicative of cerebral trouble; it may be functional or organic in its origin. If persistent or recurrent, it is of grave importance, especially in those who have passed the middle period of life.

Dropsy.—The Examiner should direct his attention to the heart, kidneys and liver, and ascertain their condition. If the applicant has had dropsy, it may have only been temporary, such as the dropsy resulting from malaria, scarlatina, or other zymotic diseases; in such cases, the applicant may be received. Dropsy arising from organic lesion precludes the person from the benefits of life insurance.

Eruptions or Skin Diseases.—The physician must distinguish between those eruptions which arise from specific disease or other constitutional cause, and those which are purely local in origin and innocuous in their nature. The former may render the applicant ineligible for insurance.

Erysipelas.—This is oftentimes a grave disease, and in some individuals will recur from very slight causes, either of a traumatic or idiopathic character. If from the latter the value of the life is much impaired.

Fistulæ.—Fistulæ occur in different parts of the body, and from various causes ; for instance, by a gun shot wound, when foreign bodies such as metal, cloth or detached bone are left in the wound. These and similar cases are usually remediable, and if the applicant has fully recovered, and the result of the examination is in every other way favourable, he may be accepted. The term fistula in Life Insurance, Medical Examiners' reports, refers usually to fistula-in-ano. This may be either constitutional, or local in origin ; the constitutional variety is usually found in phthisical persons or those who suffer from disease of the liver—such applicants must be rejected. If the fistula, however, is due to local causes, such as the presence of hæmorrhoids, etc., and if the person has recovered, he may be looked upon with favour.

Fits.—This is a general term including a great variety of conditions, such as apoplectic, epileptic and hysterical. When arising from apoplexy, reject. Epilepsy, *per se*, does not shorten life, but in consequence of the danger of accident to persons suffering from this disease, and the tendency of epileptics to become insane, the value of the life is lessened. Sometimes epileptic fits arise from causes amenable to treatment, such as those having for their origin eccentric irritations, *e.g.*, uterine, intestinal or vesical. If such a condition be fully recovered from and some time has elapsed since

the last fit, the applicant may be received, but if the fits arise from centric causes, such as pressure resulting from depressed bone, intracranial tumours, mal-nutrition of the nerve centres, emboli, etc., we must reject. Epileptic paroxysms frequently occur in drunkards and may not recur when the applicants habits are reformed. Hysterical fits are common in females and sometimes occur in males. The experienced physician will have little difficulty in distinguishing between true epilepsy and the hysterical fit, the latter being due usually to emotional causes, and are most common in young persons. Such cases are insurable.

General Debility.—This term is applied to a general weakness of the body ; if such a condition has been present and is entirely recovered from, the applicant is insurable.

Gout.—This disease is often hereditary. The danger attending gout is chiefly owing to the degenerative condition of the heart and blood vessels usually to be found in the *bon vivant*. Applicants who suffer from gout are not first-class lives.

Gravel.—This term is applied to the passage of renal calculi, accompanied by paroxysms of pain. A person who has experienced one attack is liable to recurrences. The underlying cause and the serious diseases to which it may give rise, viz., destructive inflammation of the kidney, etc., diminish the value of the risk.

Habitual Cough.—The history of habitual cough is strongly indicative of disease of the respiratory tract, and the Examiner should exercise his utmost care in ascertaining the cause. Cases of this character are generally uninsurable.

Inflammation of the Lungs or Pneumonia.—This question is suggested in consequence of the serious morbid changes which are apt to be developed by this disease, viz. : Chronic consolidation of lung substance, the development of tubercle and the formation of adhesions, etc., which may interfere with the proper performance

of respiration and the oxygenation of the blood. If any serious consequences arising from this disease are manifest, the applicant should be rejected.

Insanity.—If the person examined has ever been insane, the physician will ascertain if the disease be hereditary or due to some temporary cause, the form and kind of insanity, the age of the individual, its duration, whether the person has had more than one attack, the nature of the real or supposed exciting cause, and whether symptoms of the disease are now present. We must not confound mere eccentricity of manner, character or imbecility of mind with true insanity. Insanity may arise from causes which are quite amenable to treatment, such as malaria, the delirium which accompanies acute fever, and the abuse of alcoholic liquors, etc. Some forms of puerperal mania may also be included in this division.

La Grippe.—This disease is frequently accompanied or followed by milliary tubercle of lung tissue and impaired nerve power. Its after effects are frequently more dangerous than the disease proper, and therefore great care should be exercised by the physician in examining an applicant who has had a severe attack of La Grippe.

Liver Complaint.—The liver is the alleged father of many diseases, and may be the seat of cirrhosis, amyloid disease, fatty degeneration, and cancer, and tubercle, all of which render the applicant ineligible for life insurance. If, however, the disease has only caused a temporary derangement of the organ, such as catarrh of the bile ducts or is simply the effect of malarial influence, which has yielded to treatment, the applicant need not be rejected.

Lumps or Swellings.—This question is intended to direct attention especially to the swellings which result from scrofulous disease of the lymphatic glands, and to nodes, such as syphilitic and rheumatic. Swellings of the lymphatic glands generally point to a strumous diathesis, which is closely allied to tubercle. The mere

presence of a cicatrix in the region usually the seat of scrofulous inflammation of the lymphatic glands does not necessarily result from struma, as these glands frequently inflame and suppurate in scarlatina, etc. The presence of nodes should induce the Examiner to look for a previous history of syphilis or rheumatism.

Neuralgia.—Neuralgia is the purest type of pain, and is generally functional in its origin, that is, unattended by inflammation or structural change. It may occur in any part of the body. It may be caused by mechanical pressure on a nerve, either at its origin or in its course, as from the pressure of tumors, etc.; it is also a common symptom in malaria and lead poisoning. Neuralgia in itself does not shorten life; the repeated recurrence or persistent presence of it, however, should excite the Examiner's suspicion of some morbid influence affecting the constitution, such as the individual's surroundings or personal condition. The observant physician will readily distinguish the pain of neuralgia from that arising from inflammation or other causes. Unless the neuralgia be obdurate and accompanied by constitutional vice the applicant need not be rejected.

Open Sores.—Open sores point to diseased action, as ulcers of various kinds, sinuses, fissures, fistulæ, etc. The physician should ascertain their cause and nature, and whether they are curable or not. If an open sore be due to cancer or syphilis, reject.

Palpitation of the Heart or any form of Heart Disease.—Palpitation is a symptom, not a disease, and is of little practical value in itself except in calling the attention of the physician to the condition of the heart. Perhaps there is no organ of the body which requires a more careful study than the heart; the skill of the physician is tested to distinguish between functional disturbance and organic disease.

Dr. Walsh observes that aortic regurgitation is the most common cause of sudden death. He remarks it may take place during the act of walking, eating or speaking while the person's emotions are excited and, *per contra*, at a moment when he is perfectly calm. A very singular proposition is, that the more pure and uncomplicated the regurgitation, the freer the heart from any other disease, the more likely is the individual to be cut off without a moment's warning; further, that there is no direct connection between the amount of danger of disease at an orifice of the heart and the intensity of the existing murmur. The very weakness of a murmur may indeed be a fatal sign. According to Dr. Begbie, of Edinburgh, the deaths from heart disease comprise five per cent. of the deaths in adult life. The most common cause of heart disease in this country is rheumatism. Invariably an applicant suffering from heart disease must be rejected.

Paralysis.—Paralysis of either motion or sensation, whether it be paraplegic, hemiplegic or local, calls for a most careful enquiry. We must always endeavour to ascertain the cause. If concurrent with diseases of the circulatory system the applicant must be rejected; also if the condition be due to diseased nutrition, degenerative changes, tumors or traumatic lesion of nerve centres. Some forms of paralysis are curable, and may be entirely recovered from, especially those of a local character, as the paralysis resulting from the division of a nerve, the presence of a foreign substance, as of a bullet or piece of cloth, and that form of paralysis of one side of the face caused by cold. If a considerable interval of time has elapsed since the person was affected, and if he has now fully recovered, he may be accepted. There may also be a paralysis which is usually temporary, as sequelæ to such zymotic diseases as typhoid fever, diphtheria, etc.

Piles.—Piles are often associated with liver disease in consequence of the communication between the veins of the rectum and the portal circulation. They are also caused by a debilitated condition of the system; they are painful, and sometimes give rise to a hæmorrhage which may endanger life. In those cases where the piles are associated with disease of the liver, or if there has been much hæmorrhage, we must reject the applicant. Piles may arise from constipation, etc., or in females from the presence of a gravid uterus. These cases may sometimes be received.

Pleurisy.—If followed by adhesions, so as to interfere with the respiratory act, or if fluid be present in the pleural cavity, these conditions usually being associated with chronic inflammation and tubercle, reject. The physician must satisfy himself by a careful physical examination and by analyzing the statements of persons supposed to have had this disease, as it is often confounded with intercostal neuralgia or pleurodynia on account of the common symptom of a stitch-like pain.

Rheumatism.—Rheumatism in its various forms, viz.: Inflammatory, hereditary, syphilitic, gonorrhœal and alcoholic, is a most serious disease, not only from the danger attending its actual presence, but from the sequelæ which may arise from it. The rheumatic poison has a strong tendency to affect fibrous tissues, as the valves of the heart, the pericardium, the dura mater and the fibrous structure of joints, etc. These structures, although often escaping at the time of the attack, may be involved in serious lesion as a consequence of the rheumatism, even after a long period. The attention of the physician must be especially directed to the condition of the heart. If that organ be affected, the applicant must be rejected.

Not only is there danger from heart failure consequent on disease of the organ, but also from embolism, a sequence of diseased

valves. Other objections to applicants who have suffered from rheumatism are that one attack predisposes to a recurrence, and from the degenerative changes which ensue in the blood vessels apoplexy is not uncommon.

Scarlatina.—This is a disease of youth rather than adult life and is of importance to the Examiner for Life Insurance because it is frequently followed by serious lesions which may terminate fatally after the lapse of a long period. Chronic otorrhoea often results from an attack of scarlatina, and the inflammatory process may extend to the mastoid cells and even to the brain and its membranes. We may have uraemia, albuminuria and dropsy as a result of diseased kidneys. If any of the foregoing conditions are present, they disqualify the applicant for insurance.

Scrofula.—Persons of a scrofulous diathesis are less liable to stand the attack of disease than healthy people, and they are frequently carried off by tuberculous disease of the glands, and are not good lives.

Shortness of Breath—Is often indicative of thoracic disease, or owing to functional disturbance; it is sometimes due to mental emotion or physical exertion. The gravity and permanence of the excito-motor cause must be sought for and weighed accordingly.

Smallpox.—The discovery of vaccination by the immortal Jenner towards the close of the eighteenth century has divested this disease of much of the importance which it had previously, when it ranked first among the acute affections destructive of human life. The ignorant prejudice and obstinacy of man is well illustrated by the refusal of many to avail themselves of the preventative.

The proofs of its efficiency are overwhelming. It appears from the report of the Registrar General of England, that of 100,000 persons who have been vaccinated, 100 may expect in any year to have the disease, and 10 of these to die.

It is calculated that in 100,000 persons not vaccinated, and 600 are attacked by the disease, that 270 of the number will die, the probability being 26 to 1 in favor of those vaccinated. In persons having one or more clear marks the mortality was but 4 in the 100 of those attacked. With bad or indifferent marks the mortality was 25 in 100, and in patients without marks (presumably not vaccinated) the deaths were 48 in 100 of those attacked.

Spinal Disease.—When there is evidence of organic disease of the spine the applicant must be rejected, but the Examiner must take great care to distinguish the functional from the organic; the former is common in females and anæmic individuals. The early symptoms of locomotor ataxia should be carefully looked for, as they are sometimes very insidious; if there is any want of proper co-ordination accompanying vague so-called rheumatic pains, the case must be rejected.

Spitting or Vomiting Blood.—This is an important question and requires care and time on the part of the Medical Examiner to discover the cause.

In a great majority of cases it comes from the lungs and is a precursor or associate of tuberculosis, either in its latent or active form; or it may arise from mitral regurgitation; in either case reject. If it comes from diseased bone of the nose or malignant disease of the stomach, reject. If it can be thoroughly established that it has come from the nose (not diseased bone), throat or gums, or in females from vicarious cause, or even in some cases, of ulcer of the stomach, the application may be considered. Often cicatrized ulcers have been found in the stomach of those who have died of some other affection and the presence of the ulcer was only revealed by post mortem. Moreover, persons suffering from purpura hæmorrhagica and typhoid fever often lose large quantities of blood by the mouth and nose, and make good recoveries; these forms

should not be a bar to insurance. In a case where there has been hæmorrhage from the lungs and seven years have elapsed since the last attack, the applicant being now perfectly healthy, may not be disqualified for insurance, especially for a short term endowment.

Sunstroke.—Sunstroke is not uncommon in hot climates and in hot seasons. Sometimes little or no effects follow it and the patient makes a complete recovery. The brain power may be diminished and organic disease occur ; perhaps epilepsy or paralysis may ensue, therefore ascertain how long a time has elapsed since it occurred and whether or not the applicant is suffering any ill effects from the sunstroke, and decide accordingly.

Syphilis.—Sir Wm. Jenner and Sir James Paget, with many other eminent surgeons, consider this disease to be a very common cause of death. When it is present in any form the decision should be postponed ; we must not, however, conclude too hastily. By some people every sore on the genitals is called syphilis. This is far from being the case ; the true chancre is characteristic and it is only followed by constitutional symptoms. The physician must look carefully for traces of eruptions on the skin, whether there is any emaciation or evidence of depraved nutrition, enlarged cervical glands, white patches or cicatrices on the mucus membrane of the mouth, tongue or throat, nodes, induration of lymphatic glands, onychia, etc. Such persons should not be received until all evidences of the disease have disappeared.

Typhus or Typhoid Fever.—Typhus fever is a very virulent disease with a large mortality, and like other acute fevers is apt to leave serious consequences which tend to weaken the constitution. Fortunately, however for us, it has not made its appearance in this country for upwards of forty years. Typhoid or enteric fever is common throughout the world. Persons suffering from this disease

are not likely to apply for life insurance. In those who have had it particular attention should be directed to the glandular and nervous systems of the body. The recurrence of diarrhœa in a person who has had typhoid fever would point to some weakness in the glandular structures of the intestines. Loss of power or paralysis, caused by embolism, frequently follows this disease, and if present would render the applicant uninsurable.

If there be a tubercular diathesis, however slight, in a person who has suffered from typhoid, it is not uncommon for the latent tubercle to be developed as a result of this disease.

Varicose Veins.—The etiology of this disease is not certain ; it may appear in the robust and in the weak, in those who live well and those who do not, in the young and in the old, and although it may interfere with the comfort of the person it does not necessarily shorten life. Varicose veins may appear in any part of the venous system, but are most likely to occur in the veins of the legs. The Examiner must bear in mind that they are liable to become inflamed, or thrombosis may take place, or they may ulcerate or may rupture. They are common in pregnant females, but after labour usually subside. Unless the varicose veins are unusually large, the applicant need not be rejected.

Is the person subject to dyspepsia, constipation, dysentery or diarrhœa ?

Dyspepsia is very common, and *per se* is not of grave import ; it generally indicates a catarrhal condition of the mucus membrane of the stomach or a slight disturbance of the functions of the liver, or it may be merely sympathetic of uterine, kidney or nervous affections. Such is not always the case, however, as it is frequently a premonitory symptom of tuberculosis or it may indicate a malignant or non-malignant disease of the stomach.

Constipation.—The demands of nature allow a wide latitude in reference to the evacuation of the bowels in individuals, and what would be considered alarming in one person may be quite normal in another ; for instance, some persons are never comfortable without one or more evacuations in the 24 hours ; others do not have their bowels relieved more than once a week, and this may be natural in both cases ; the latter is common in anæmic females or in persons who have an atonic condition of the muscular fibres of the intestine. These and similar cases are usually insurable, but when it arises from mechanical obstruction, such as from stricture, morbid growths, whether malignant or non-malignant, or if the condition be due to certain diseases of the brain or spinal cord, reject.

Diarrhœa.—The character more than the frequency of the discharge is important. Many of the causes of diarrhœa are amenable to treatment, such as that arising from improper dietary. Acute attacks are common at all ages of life. The frequent recurrence of this disease would lead one to enquire into the condition of the liver and into the habits of life of the person ; those addicted to the use of alcohol or narcotics frequently suffer from a relaxed condition of the bowels. If the disease be persistent, and especially if the person loses flesh, the diarrhœa being attended with more or less abdominal pain, an unhealthy hue of the countenance, occasional chills or slight elevations of temperature, the case is serious and is probably due to ulceration of the glands of the intestine. Such persons would be ineligible for insurance. If the disease be persistent, and the party has resided in hot climates or made free use of alcoholic drinks, reject.

Stimulants and Narcotics.—Describe fully the person's practice in regard to the personal use of stimulants and narcotics. We need hardly expect an applicant who uses stimulants to excess to admit the fact on being questioned ; we must look for the signs

of habitual over-indulgence. Those people who have occasional sprees at long intervals of time are not so apt to show the injurious impress on the constitution as those who habitually use an excessive quantity of alcoholic drink. In the latter cases the general appearance will be a good guide to the Examiner, the complexion, the condition of the eye, tremor of the muscles of the hands, etc., all may assist in determining the habits of the applicant. Some authors have fixed a standard whereby to judge what is an excessive quantity of alcohol for an adult. The effects on the constitution is what the Medical Examiner must investigate. The use of narcotics, which is another form of intemperance and which in some cases is even more intractable than the abuse of alcohol, is detrimental to longevity.

The narcotics which are likely to be habitually used are opium, chloral hydrate, cannabis indica, tobacco, ether and chloroform.

What has been the habit in this respect throughout life ?

If a man has reached the age of 40 without forming the habit of over-indulgence he is unlikely to acquire it, but his occupation, surroundings, etc., must be considered. If a man be now a total abstainer, we must remember he may be a reformed drunkard, and in danger of a relapse to his former condition.

Is there anything disproportionate in the weight, stature or girth measurements ?

Weight.—In considering this question, the general development of the body must be taken into account. Excessive weight, particularly in early life, not being hereditary, is indicative of faulty nutrition, and is often caused by intemperance or want of exercise.

Stature.—As a rule tall men are capable of less endurance than those of average height, viz., 5 ft. 8 in., and are more prone to pulmonary and cardiac diseases, and are more liable to have hernia or varicose veins. Short men are apt to be dispropor-

tionally developed, and their physical endurance is small. As a limit of under and over-weight the following table will be a guide to the Examiner. Twenty-five per cent. *under-weight* is the loss of one-fourth of the man, and calls for the most searching investigation on the part of the Examiner. Light weight cases may be the result of chronic dyspepsia, diarrhœa or dysentery, marasmus, scrofula, hæmorrhoids (bleeding), hypertrophy of the heart with excessive impulse, albuminuria, Bright's disease, etc. In addition to these, in the case of females, some chronic uterine disease may be suspected. The exceptions are few in which it is safe to disregard these limits, and in every case of under-weight, tests for Bright's and other diseases are imperatively required.

TABLE OF HEIGHT, WEIGHT AND MEASURE.

Height.	25 perct. Under Weight.	20 perct. Under Weight	American Standard Average Weight	25 perct. Over Weight.	40 perct. Over Weight.	Average Chest Measure- ment.
5 ft.	86	92	115	144	161	33 in.
5 ft. 1 in.	90	96	120	150	168	34 in.
5 ft. 2 in.	94	100	125	156	175	35½ in.
5 ft. 3 in.	97	104	130	163	182	36 in.
5 ft. 4 in.	101	108	135	169	189	36½ in.
5 ft. 5 in.	105	112	140	175	196	37 in.
5 ft. 6 in.	107	114	143	178	200	37½ in.
5 ft. 7 in.	109	116	145	181	203	38 in.
5 ft. 8 in.	111	119	148	185	208	38½ in.
5 ft. 9 in.	116	124	155	194	217	39 in.
5 ft. 10 in.	120	128	160	200	224	39½ in.
5 ft. 11 in.	124	132	165	206	231	40½ in.
6 ft.	127	136	170	212	238	41 in.
6 ft. 1 in.	131	140	175	219	245	41½ in.
6 ft. 2 in.	135	144	180	225	252	42½ in.

The Respiratory System.—The importance of a thorough examination of the respiratory organs cannot be too forcibly impressed on the mind of the Examiner. In England, according to the latest authorities, one in six of the deaths occurring in the adult population is from disease of the respiratory tract. We must ascertain by inspection, percussion and auscultation, whether the respiratory murmur and resonance are clear and distinct and normal in character over all parts of both lungs.

In general terms, in health, the act of respiration (including inspiration and expiration), should be quiet, easy and regular in the ratio of one to four or five of the pulse, and not exceeding twenty per minute. This may, however, be temporarily influenced by mental causes or physical exercise.

Drawing a full breath and holding it for a few seconds should cause no distress or pain.

An adult should be able to count aloud rather slowly from twenty to thirty without drawing a fresh breath.

In the adult the chest should expand in all directions and the muscles of the neck and arms (auxilliary muscles) should not take any active or visible part in the act.

The respiratory murmur should be gentle like a slight breeze among the trees, not harsh or noisy.

Prolonged expiration frequently points to lung disease.

Irregular, intermittent or jerking respiration points to derangement of the nerve centres. If the respiratory act varies from the normal standard in frequency, a subsequent examination should be made before reporting on the case.

If the blood be well aerated the lips, ears and tips of the fingers should not have any livid or purple tint.

Measurement.—The measurements required are taken over the bare skin, and are the following :

Chest measurement during full inspiration and full expiration.

Girth of waist.

The difference between full inspiration and full expiration is, as a rule, $2\frac{1}{2}$ inches, while the difference between chest and girth is about 3 inches.

Circulatory System.—Is the character of the heart's action uniform, free and steady ?

In health the heart's action should be uniform, free and steady, its sounds clear and distinct and rhythm regular and normal. On inspection the impulse of the heart will be visible about one and half inches within and the same distance below the left nipple, in the fifth intercostal space ; it should be plainly perceptible when the person is in an erect posture, and should not appear jerking or widely diffused.

The rhythm of the normal heart is regular ; we must not, however, too hastily conclude when departure does take place that it is necessarily due to disease. Sometimes such a condition is due to idiosyncrasy or a temporary disturbance of the nerve centres ; it may also be due to anæmia. In such cases postpone decision until thoroughly satisfied as to the cause of such departure.

The frequency of the pulse varies during the different periods of life and also in different climates.

In the adult its rate in temperate climates is from seventy to eighty per minute, the pulse of females being slightly more frequent.

The pulse should not intermit or become irregular when the applicant is in a passive condition. In the north-west part of this continent the pulse rate is increased by about ten beats per minute, while in the West India Islands it is reduced by about the same number.

Some people, without any evident cause and perfectly free from disease, have an intermittent pulse; others have an abnormally slow or fast one from idiosyncrasy. If the pulse rate be above eighty-eight or below fifty-four, re-examine on another day.

Temperature.—After examination of the chest take temperature and note if there be any departure from the normal standard.

Urine.—An examination of the urine is required in all cases. Note quantity, colour, deposit if any, specific gravity, re-action, presence or absence of albumen or sugar, etc. The normal quantity of urine voided during the twenty-four hours in a temperate climate is between fifty and sixty ounces for the male and forty and fifty for the female.

The colour of healthy urine varies from light straw to dark amber. The specific gravity of normal urine at the temperature of an ordinary room, about 70° F., runs from 10.10 to 10.25. If of a low specific gravity your attention is specially directed to the detection of albumen; if of high, it may indicate the presence of sugar.

Re-action.—Urine in its normal state is generally acid, but is subject to variation, more especially after meals.

Test for Re-action.—If the urine be acid, blue litmus paper is turned red and vice versa.

Detection of Albumen.—Urine containing albumen is generally of low specific gravity and light amber in colour.

Chemical Tests.—(1) Heat and nitric acid. If the urine be not clear *filter*. Fill test tube three-quarters full with the clear urine and boil the upper portion; if a turbidity results it is due either to the presence of albumen or earthy phosphates. Add a few drops of nitric acid, and again boil. If the turbidity disappears then it is owing to the presence of earthy phosphates; if it remains or becomes intensified then albumen is present.

(2) Cold and nitric acid (Heller's test). Pour into a test tube about one inch of nitric acid, drop down the side of the inclined tube a small quantity of clear urine. If albumen be present then a sharp white zone appears at the contact point. This is a confirmatory test.

Detection of Sugar.—Urine containing sugar is generally of high specific gravity. As a rule when the bottle containing the urine is briskly shaken a froth appears on the surface and lasts for some little time. Frequently a peculiar odour is apparent, similar to chloroform.

Fehling's Test.—The test for sugar should be secondary to that of albumen, for if albumen be present it must be eliminated. To do so, boil the urine, filter and proceed with Fehling's test. To the Fehling's solution diluted with about four times its bulk of distilled water after boiling, add the suspected urine drop by drop. If sugar be present a yellow or yellowish brown discoloration or precipitate appears. If the discoloration or precipitate be slight add sufficient urine to equal the volume of test solution, boil again and allow to stand for a few hours. If sugar be present a red precipitate of suboxide of copper appears. If doubtful, use fermentation test, which is conclusive.

In case of any suspicious deposit use microscope.

Nervous System.—This of all others is most influenced by a variety of causes. The question suggests itself, is there any departure from the normal condition of the nervous system, and if so, is it due to organic disease or functional derangement? If to the former it may render the applicant ineligible for insurance.

Digestive Organs.—The nutrition of the body depends on a healthy condition of the digestive organs, without which wholesome assimilation will not take place.

Genito-Urinary Organs.—Enquiry should be made as to any evidence of present or past disease of these organs.

Locomotory Organs.—The connection between the diseases of nervous and the locomotory system is very close, and reference has already been made to the more prominent ones.

Cutaneous System.—Its abnormal condition often points to constitutional disease, hence the importance of careful observation when examining the applicant.

Organs of Sense.—Disease of the organs of special sense is sometimes fraught with danger, as in the case of suppurative diseases of the ear; which though not urgent at the time of examination, still may at some future date prove fatal. The loss of sight, although it may not shorten "life," still lessens the "expectation of life," by exposing the afflicted one to greater dangers of accident than he otherwise would have.

Do you find any tendency past or present to cough, expectoration, difficulty of breathing, or palpitation? Or of predisposition hereditary or acquired, to any particular disease?

This question is intended to direct the Examiner's attention particularly to the condition of the thoracic viscera, and to ascertain, if possible, whether, there is or has been any departure from the healthy condition, and if so, is it due to hereditary or acquired causes.

Do you find that there have been cases of consumption or other hereditary disease among the parents, brothers, sisters, or other blood relations of the applicant?

At the present day the hereditary nature of some diseases is unquestioned, and of all the diseases which exercise an hereditary influence, consumption is the most prominent.

The proportion of hereditary and acquired cases vary at the different ages of life. According to authorities those cases which

occur before the age of thirty-five are usually hereditary ; after that period they are more frequently acquired.

That a tendency to consumption is capable of being transmitted from parent to offspring, we presume is admitted.

The offspring of consumptive parents may or may not be attacked by the disease—it may miss one generation and attack the next ; thus we find phthisical parents bearing apparently healthy children, or the children of such parents who seem themselves to be healthy having phthisical offspring.

In suspected cases individual modifying circumstances must be carefully examined and weighed.

The age, personal health, configuration, habits, residence and occupation of the person examined, and the health and longevity of relations generally, must be considered before deciding on a case : also ascertain if more than one relative has died of the disease and the degree of propinquity, the age or ages at which death occurred, the number of deaths and the ages and state of health of the members of the family now alive.

Drs. Begbie and Christison state :—When two members of a family have died of consumption the risk must be declined. This rule is not, however, always acted upon.

These are the general rules for applicants on the whole life plans, but some of the following cases may be taken on endowment plan for a suitable term of years, when the personal history of the applicant is good.

In the following cases reject :

1. When three cases have occurred in a family.
2. When the applicant is under twenty-one years of age and one case has occurred.
3. When under thirty and a parent has died of the disease.

4. When under thirty-five and two members have shown the disease.

5. When under forty and both parents have died of the disease.

The communicability of consumption is beyond doubt.

Among the other hereditary diseases we may mention insanity, gout, cancer and epilepsy.

Has the applicant ever had any serious illness or injury?

The Examiner will here enquire carefully; some illnesses are frequently followed by organic lesions, such as malarial fever, typhoid, diphtheria, etc.

As to Injuries.—Injury to the head or spinal cord may, after the lapse of months or years, give rise to fatal results. As an instance, a man may receive injury to the brain or spinal cord, and although he recover from the immediate effect, it may be followed by ulterior consequences which may terminate unfavorably.

Women.—If the applicant be a woman, state number of children, if now or when last pregnant, whether there have been any miscarriages or difficult labours, are the uterine functions now regular, has she ever suffered from uterine or menstrual disease or disorder?

Most companies do not insure a pregnant woman, nor a married woman until she has had one child, unless she is over forty years of age; nor an unmarried woman, except on short endowments.

With the whole population the duration of life amongst females exceeds that amongst males; but in the experience of life insurance companies the reverse is true. If this curious fact is to be explained on the assumption that medical examinations of females are not usually so thorough and disingenuous as that of males, it is a reflection upon our profession which we hope the future will remove.

There are certain conditions incident to females which render their lives somewhat hazardous, such as menstrual functions, child-bearing, miscarriage or difficulty in labour, etc. A woman who has once borne a child without any considerable difficulty, is a much better risk than a primipara, and married women are better risks than those who are single. Previous labours should be carefully enquired into.

Is the person ruptured?

Rupture is much more common than is generally supposed and is met with more frequently in the male than in the female, the proportion being 5 to 1.

According to Malgaigne one man in every thirteen in France is ruptured.

The word Hernia in insurance papers refers especially to the various forms of abdominal hernia; the dangers attending this condition are well known, but at the same time it is a remarkable fact that the mortality due to hernia is only four per cent. of those so affected. Hence, if a properly adjusted truss be worn, the risk may be received, and in most policies a clause is inserted to the effect that the insured must wear a suitable and well fitting truss.

Are the muscles hard and strong? Is the gait firm and elastic?

These questions have a bearing on the general condition and physique of the person examined.

Is the spleen or liver enlarged?

If the party is residing or has resided in a malarious district, we may find some enlargement of the spleen or liver as a result of the influence of malarial poison acting on these organs. If

the enlargement be chronic it is due to organic change in the structure of the organs themselves, and would be a cause for rejection.

Does the state of the teeth, mouth and throat indicate health?

Persons who have sound teeth masticate their food properly and are not liable to dyspepsia.

Sound teeth are usually associated with a strong constitution, and decayed teeth with the reverse.

Inherited syphilis may sometimes be recognized by the conformation of the teeth, particularly that of the incisors, and also by the state of the mouth and throat.

HABITS.

Do you find by examination or inquiry any indications that the applicant's habits of life are or ever have been other than correct and temperate? The observant Examiner can usually judge of this from the general appearance of the applicant.

Excess of any kind, if continued for a lengthened period, will lessen the chance of longevity, but there is a great difference between individuals as to the toleration of the system.

PHYSIQUE.

Do you find any unfavorable features whatever in the applicant's physique, family or personal history, residence (e.g., if malarious), occupation (e.g., if involving any special exposure or danger), habits or circumstances of life?

This question is a summary of the circumstances affecting the proposed risk, and the answers to it should be well weighed and studied.

Physique refers to conformation or build; any departure from the normal standard would be of importance only when it affects the probable duration of life.

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Family and personal history. Special care must be exercised to ascertain if there have been any cases of hereditary disease in the immediate family or near blood relations.

Personal history refers not only to his present physical condition but also to his present and past habits of life, etc.

Residence, whether healthy or otherwise. If malarious, the person is exposed to the dangers of the various forms of malarious disease, both of an acute and chronic nature.

Who is the applicant's medical adviser? Do you need any information from him?

This question may sometimes be of importance, as applicants for insurance have denied having had any medical man attending them, and it subsequently became known that they had undergone a serious illness, and had been under professional treatment.

A false answer to this question might invalidate the policy.

Sometimes much valuable information may be obtained as to the habits and former health of the applicant from his usual medical adviser which might not be brought to light by the Company's Medical Examiner.

Do you think the applicant will reach the full expectation of life?

By "expectation of life" for a given age, is meant simply the probable average duration to which life, among men who have attained that age, will be further extended. Thus taking 1,000 healthy men who have attained the age of 35, the aggregate duration of life beyond that age for the whole number will be 31,020 years, or an average of 31.02 years for each man.

Tables of "life expectation" are a deduction, by a simple calculation, from the "mortality tables," which are made up from observations of the rate of mortality at each separate age. Several such tables are in use, but the one named in the Dominion Insurance Act of 1886 is the Hm. Institute of Actuaries' Table of Mortality, and is made up from the experience of 20 leading English offices.

The following is the expectation of life, for each age, from 20 to 70, on the basis of the Hm. Institute of Actuaries' Table of Mortality:—

TABLE OF LIFE EXPECTATION.

Present Age.	Expectation of Life, (healthy male lives)	Present Age.	Expectation of Life, (healthy male lives)	Present Age.	Expectation of Life, (healthy male lives)	Present Age.	Expectation of Life, (healthy male lives)
20	42.06	33	32.48	46	23.08	59	14.44
21	41.33	34	31.75	47	22.38	60	13.83
22	40.60	35	31.02	48	21.68	61	13.24
23	39.88	36	30.29	49	20.99	62	12.66
24	39.15	37	29.56	50	20.31	63	12.10
25	38.41	38	28.84	51	19.63	64	11.55
26	37.66	39	28.12	52	18.95	65	11.01
27	36.91	40	27.40	53	18.28	66	10.49
28	36.16	41	26.68	54	17.62	67	9.98
29	35.42	42	25.96	55	16.96	68	9.48
30	34.68	43	25.23	56	16.32	69	8.98
31	33.95	44	24.51	57	15.68	70	8.50
32	33.21	45	23.79	58	15.05		

All the considerations involved in the foregoing questions lead up to this most important one. The Examiner having investigated the habits, the personal and family history, and the present physical condition of the applicant, and become acquainted with the conditions and influences which surround him in his daily life, is prepared to give a reliable opinion as to the probable duration of the applicant's life.

In any case of reasonable doubt he should give the Company the benefit of it.

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(healthy male lives)

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