WHARTON AND STILLÉ'S

MEDICAL JURISPRUDENCE

VOL. III

PHYSICAL CONDITIONS AND TREATMENT

MEDICAL ASPECTS
BY
TRUMAN ABBE, A.B. (Harv.), M.D. (Col.)
ASSISTANT TO THE PROFESSOR OF SURGERY AND TO THE PROFESSOR OF PHYSIOLOGY AT THE GEORGETOWN UNIVERSITY MEDICAL SCHOOL.

LEGAL ASPECTS
BY
FRANK H. BOWLBY
OF THE PUBLISHERS' EDITORIAL STAFF

FIFTH EDITION

ROCHESTER, N. Y.:
THE LAWYERS' CO-OPERATIVE PUBLISHING COMPANY
1905

E. R. Andrews Printing Company, Rochester, N. Y.

PREFACE TO THE FOURTH EDITION.

In this volume, the sections between § 1 and § 262 have been revised by Dr. Samuel Ashhurst, and those between § 265 and § 586 by Dr. Wharton Sinkler. The chapters on Life Insurance and on Defects of Vision (including Color Blindness), which close the volume, are new. The portions of the work which bear on juridical law have been rearranged and in a large measure rewritten so as to incorporate in them recent English and American decisions.

F. W.

Philadelphia, March, 1884.

PREFACE TO THE FIFTH EDITION.

In the present edition, Volume III., Books I., II., and III. have been almost entirely rewritten, following the same general lines as in the fourth edition. This rewriting has been made necessary by the advances during the past twenty years in so many lines of scientific work, especially in physics, chemistry, entomology, bacteriology, anatomy, pathology, and physiology. A vast quantity of material that we have had to make use of in this book, however, is still far from being placed on a scientific basis. It rests upon the assertions of the men who, in the past, have done the writing. Their ideas, no matter whether based upon accurate observations and careful reasoning or not, have been copied from book to book, and when analyzed show that they are merely the opinion of one man, that has been followed by others, not because it was proved to be true, but because the others knew nothing more accurate. And for that same reason in some instances this present edition, in order to present at least some working basis on which to build, has quoted the widespread statements that have generally been accepted, but the editor has endeavored to show the doubts and the unsatisfactory state of our knowledge by hedging in these statements with "may be," "perhaps," "in some cases," etc. Investigation from a scientific standpoint in medical lines is advancing slowly enough in the lines of disease and treatment which appeal to all the practising physicians, but the parts that are important to the medical jurist advance much more slowly, and in these the Americans, much to our regret, are far behind the French and the Germans.

Two entirely new chapters have been added, one on the effects of electricity, and one on the causes of sudden death. The spelling of the medical terms has been largely in conformity with the choice of the recent lexicographers, although that standard has not been fully adopted by the medical profession. In the references to medical works the abbreviations used are those adopted in the Index Catalogue of the library of the Surgeon General's office.

The chapters on questions distinctively legal have been entirely rewritten and rearranged, and extensive additions have been made.

The work is entirely new; but all of the subjects treated in the fourth edition are here considered, though some of them are under different names, and substantially everything there found is here reproduced with the addition of subsequent decisions. Some matters thought to be medical rather than distinctively legal are to be found in other parts of this work, and some which seemed to belong to the general field of law rather than that of medical jurisprudence are omitted. New chapters on various subjects are here incorporated. Among these are the following chapters: The Right to Practise Medicine, Surgery, etc.; Duty to call a Physician; Relation between Physician and Patient or Employer; Degree of Care and Skill Required; Compensation; Official Employment and Duties. Also an extended consideration of the questions of medical books as evidence, of the privilege of physicians, of injuries to physicians, and of the effect of their acts upon the rights, duties, and liabilities of third persons. The design has been to furnish all the law as to the rights, regulations, duties, and liabilities of physicians and surgeons in all their personal relations, and as to situations arising from their acts.

January, 1905.

TABLE OF CONTENTS.

BOOK I.

QUESTIONS RELATIVE TO PREGNANCY AND INFANTICIDE.

CHAPTER I.

DIAGNOSIS OF EXISTING PREGNANCY.

CHAPTER II.

DIAGNOSIS OF PREVIOUS PREGNANCY.

CHAPTER III.

DURATION OF PREGNANCY.

CHAPTER IV.

SUPERFETATION.

CHAPTER V.

ABORTION AND FETICIDE.

CHAPTER VI.

INFANTICIDE.

BOOK II.

QUESTIONS ARISING OUT OF THE DIFFERENCE OF SEX.

CHAPTER I.

DOUBTFUL SEX.

CHAPTER II.

SEXUAL DISABILITY.

CHAPTER III.

RAPE.

CHAPTER IV.

UNNATURAL CRIMES.

BOOK III.

PHYSICAL INJURIES BY FORCE.

CHAPTER I.

WOUNDS.

CHAPTER II.

BURNS AND SCALDS.

CHAPTER III.

HEAT AND SUNSTROKE.

CHAPTER IV.

COLD.

CHAPTER V.

ELECTRICITY AND LIGHTNING.

CHAPTER VI.

STARVATION.

CHAPTER VII.

SUFFOCATION.

CHAPTER VIII.

STRANGULATION.

CHAPTER IX.

HANGING.

CHAPTER X.

DROWNING.

CHAPTER XI.

SUDDEN DEATHS FROM NATURAL CAUSES.

CHAPTER XII.

DEATH AND SIGNS OF DEATH.

BOOK IV.

QUESTIONS DISTINCTIVELY LEGAL.

CHAPTER XIII.

RIGHT TO PRACTICE MEDICINE, SURGERY, ETC.

CHAPTER XIV.

DUTY TO CALL PHYSICIAN.

CHAPTER XV.

RELATION BETWEEN PHYSICIAN AND PATIENT OR EMPLOYER.

CHAPTER XVI.

DEGREE OF CARE AND SKILL REQUIRED OF PHYSICIANS.

CHAPTER XVII.

COMPENSATION UNDER ORDINARY CONTRACT OF EMPLOYMENT.

CHAPTER XVIII.

OFFICIAL EMPLOYMENT AND DUTIES OF PHYSICIANS AND SURGEONS.

CHAPTER XIX.

MALPRACTICE.

CHAPTER XX.

USE OF HYPNOTISM.

CHAPTER XXI.

ABORTION.

CHAPTER XXII.

INTERFERENCE WITH DEAD BODIES.

CHAPTER XXIII.

INSURANCE.

CHAPTER XXIV.

IDENTIFICATION.

CHAPTER XXV.

SURVIVORSHIP.

CHAPTER XXVI.

RAPE.

CHAPTER XXVII.

MEDICAL EVIDENCE.

CHAPTER XXVIII.

INJURIES TO PHYSICIANS OR SURGEONS.

CHAPTER XXIX.

PHYSICIANS' ACTS AS AFFECTING RIGHTS, DUTIES, AND LIABILITIES OF THIRD PERSONS.

TABLE OF CASES CITED.

A

B

C

D

E

F

G

H

I

J

K

L

M

N

O

P

Q

R

S

T

U

V

W

Y

Z

BOOK I.

QUESTIONS RELATIVE TO PREGNANCY AND INFANTICIDE.

MEDICAL JURISPRUDENCE.

BOOK I.

QUESTIONS RELATIVE TO PREGNANCY AND INFANTICIDE.

CHAPTER I.

DIAGNOSIS OF EXISTING PREGNANCY.

1. Introduction.— In determining the existence of pregnancy in woman, not only must the normal course of events be considered, but also the abnormal possibilities. If one can wait for the birth of the

child, the question may settle itself beyond dispute. If it be necessary to determine the question before that time, then the diagnosis must be made from the signs that may be elicited during the course of the possible pregnancy. In normal cases the presence of the fetus in the uterus is positive proof of the pregnancy; but the woman may be pregnant and still have no fetus in her womb. The fetus may be in the abdominal cavity: as in some of the extrauterine pregnancies; or the fetus may have undergone such morbid changes as to make the usual fetal structures indistinguishable: as in the hydatidiform mole; and yet there can be no doubt as to the previous impregnation and conception.

2. **Presumptive signs in general.**— In normal pregnancy certain objective signs and subjective symptoms are regularly present on which to base the diagnosis. These signs may be divided into those which give presumptive evidence in favor of the pregnancy, and those which afford positive proof of its presence. The presumptive signs may, in general, be classified as those depending on (1) changes in the uterus itself; (2) changes in the breasts; (3) sympathetic changes in the rest of the body. The positive signs are demonstrations of the presence of the fetus.

3. **Suppression of the menses.**— Beginning with the changes in the uterus, we note first the cessation of the menses; normally, during both pregnancy and the subsequent lactation; but suppression of the menses for a single period may be due to various other causes; for example, scarlet fever; acute rheumatism; slight disturbances of general health, and emotional disturbances. Longer periods of suppression may be due to greater constitutional disorders; such as typhoid, nephritis, tuberculosis, anemia, diabetes, nervous disturbances, *et cetera*. In the later years of a woman's life the menopause, which sets in with the omission of the regular monthly periods for one or more months, might easily be mistaken for a possible pregnancy.

Again, the menses may continue during the first few months of pregnancy, or, if there is not a true menstrual flow, there is at least something which is, by the laity, easily mistaken for it; as in the case of an abortion at the end of the fourth or fifth week. Exceptional cases are reported where there have been monthly discharges continuing throughout the whole period of pregnancy.[1] Hence, the presence of the menses cannot be taken as proof of the absence of pregnancy.

[1] Williams's Obstetrics, 1903, p. 164.

On the other hand, pregnancy may begin in a period when the menses are absent from some cause or other: as, during lactation, which is very commonly the case; or in a girl, before the menses have been established;[2] or in old women, after the menopause has apparently set in.[3] In these cases it is needless to say that the absence of the menstrual periods gives no clue as to the existence of pregnancy. Hence, although, under ordinary circumstances, the cessation of the menses is a sign of considerable importance, and is, in the majority of instances, the first sign of existing pregnancy noted by the woman, yet it cannot be taken as at all a positive sign.

4. Enlargement of the abdomen.—Enlargement of the abdomen, due to the increasing size of the uterus, generally becomes apparent at the end of the third month, when the uterus rises out of the pelvis. The increase in size is gradual, and at a fairly definite rate during the first eight and a half months, till the uterus reaches its maximum size with its fundus at the ensiform cartilage. This gradual increase in size of the abdomen is very suggestive of pregnancy, especially when it is associated with the uterine mass of pyriform shape, the base of the mass being towards the thorax. With the enlargement of the uterus and the consequent stretching of the abdominal walls, there are formed in the skin the striæ which give it a peculiar appearance, not diagnostic of pregnancy, but very suggestive of it. Enlargement of the abdomen may be due to numerous other causes besides pregnancy, such as a distended bladder, ascites, pelvic tumors, and even flatus in the intestines; some of which may even follow approximately the usual rate of growth of the pregnant uterus.

5. Rhythmical contractions.—In the gravid uterus there are regular, rhythmical contractions, which occur about every twenty minutes, and may be felt from the time when the uterus rises out of the pelvis until labor, and are considered as positive as any sign afforded by the mother. Winter in his Lehrbuch der Gynäkologischen Diagnostik, p. 170, quotes a case of doubtful diagnosis, in which the question was settled on this one symptom of rhythmical contractions; and where the emptying of the uterus a few days later proved the pregnancy, but the presence of a blood-mole in place of a normal

[2] Dr. Gregory, of Missouri, relates the case of a woman who had six living children, and had never menstruated. Dr. Gillette communicated to the Société d'Emulation de Paris the case of a woman thirty-five years of age, who had never menstruated or had any vicarious discharge. See, also, cases reported in the Am. Jour. of Med. Sciences, April, 1844; Lancet, Sept. 1853, p. 206; and Montgomery, Signs and Symptoms of Pregnancy, 2d ed., p. 77.

[3] N. Am. Med. and Surg. Journ., Vol. I., p. 741. See § 161, *post*.

fetus. But even this sign may occur in other conditions of the uterus.[4]

6. **Pseudocyesis.**— There are recorded[5] a number of cases where enlargement of the abdomen, together with some of the other signs of doubtful value, and the firm belief of the woman in her pregnancy, have deceived the physicians so completely that operations have been performed for the removal of the child; then, when the abdomen was opened, nothing was found but the intestines distended with gas. These cases of pseudocyesis show clearly how misleading are the presumptive signs of pregnancy, no matter how certain they may seem to be.

7. **Discoloration of linea alba.**— Associated with the enlargement of the abdomen there is frequently a brown discoloration of the linea alba, beginning at the pubes, and ascending toward the ensiform cartilage with the rise of the uterus. But, like the enlargement of the abdomen, this pigmentation may be due to many other causes, and is of even much less value, because dependent upon the general pigmentation of the body.

8. **Prominence of umbilicus.**— The relative height of the umbilicus, relatively depressed in the early months, and protruding in the later months, has also been considered, but is of practically no value.

9. **Cervix and lower uterine changes,—vaginal flattening; uterus anteflexion; cervix softening; Hegar's sign.**— As pregnancy advances, certain changes take place in the cervix and lower portion of the uterus, which are of much importance in diagnosis. First, as the uterus increases in weight, it descends in the pelvis, making the cervix to come nearer to the vaginal outlet, the uterine end of the vagina apparently to flatten and the uterus to become anteflexed. This condition lasts until the third or fourth month, when the uterus rises out of the pelvis, becomes palpable from the abdomen, and will be found to have lengthened the vagina. Along with this rise out of the pelvis, changes in the consistency of the cervix become definitely apparent. The normally cartilaginous, hard cervix becomes softer, the softening beginning in the region of the external os during the second month, and involving the whole cervix at the end of pregnancy. There is also a softening and thinning of the lower segment of the body of the uterus going on at the same time; but this softening of the lower uterine segment, which is nearly characteristic of pregnancy, goes on more rapidly than the softening of the cervix. The

[4] Williams's Obstetrics, p. 164.

[5] Montgomery, Signs and Symptoms of Pregnancy, 2d ed., p. 405; and Simpson, Times and Gazetteer, 1859, p. 225.

softening of the lower uterine segment gives the condition on which Hegar's sign is based, determinable in the second month, according to Williams.[6] When the attempt is made to palpate the body of the uterus bimanually, with the vaginal fingers in the posterior fornix and the abdominal fingers in front of the uterus (so that the cervix lies between the fingers of the two hands), the cervix seems to be entirely separate from the body of the uterus, and the lower segment of the uterus is not felt. This Hegar's sign is one of the most characteristic of the early signs of pregnancy, and is of great importance.[7]

10. **Quickening.**— With the development of the fetus, there comes in the fifth month, usually, what is called "quickening:" when the mother first feels the movements of the child inside of her. This symptom was formerly given much weight, because at that time the child was supposed to receive its spiritual nature,—to become animate. Such ideas have now become entirely obsolete in the scientific world. The time of perfecting the child is at its conception. After that, in all ways, it is merely a question of growth and development. The time of quickening, however, is still of some importance in reckoning the duration of pregnancy in cases where conception occurs during a period of suppressed menses. Then we can count from the quickening as though it occurred in the fifth month. But here, again, the value of the statement must be weighed carefully, as there is no way of proving that the movements felt by the mother are those of the child.

11. **Genital coloring.**— Another sign due to the development of the genital tract under the influences of pregnancy is the permanent congestion of the vagina and external organs. These assume a peculiar bluish or violet color, and at the same time become soft and velvety to the touch, while their mucous secretion is greatly increased in quantity. These signs are, however, of only slight value; the difference in color being only a slight one, and the same color being also produced by other changes causing congestion of this part of the body.

12. **Kiestein.**— The presence of a peculiar formation in the urine, —kiestein,—to which formerly considerable importance was attached, is also being relegated to the past, as of no importance, since it does not occur in all cases of pregnancy, and does occur in non-pregnant women, and also in men.[8]

[6] Williams's Obstetrics, p. 163.
[7] *Ibid.;* and Reinl, Prager Med. Wochensch, 1884, Nr. 26; Sonntag, Hegar's Sign of Pregnancy, Amer. Jour. Obstet. 1892, Vol. XXVI., p. 145.
[8] Playfair's Midwifery, 6th Amer. ed., 1893, p. 148.

13. Changes in the breasts.— Among the most important signs of pregnancy are the progressive changes in the breasts. There is a steady increase in their size, which first becomes evident in the second month. With this there is an increase in the gland tissue of the breast, which becomes firm or knotty, and somewhat tender. The superficial veins become more and more prominent, and with the marked increase in size, striæ appear in the skin over them, similar to the striæ in the abdomen. The new ones are of a pinkish hue or sometimes of a bluish red, those of previous pregnancies being of a silvery color. The pigmentation of the breasts is also deepened, especially that in the nipple area. The nipples themselves become more easily erectile. Around the primary areola of the nipple there develops, usually about the middle of the pregnancy, a secondary zone of pigmentation, the secondary areola, in which, as well as in the primary areola, the tubercles of Montgomery appear. The secretion of colostrum becomes evident in the third or fourth month, and of milk in the last month. The value of these breast signs is considerable, and yet not positive; for the secretion of milk or colostrum may be set up by diseases of the uterus and ovaries, or even by local stimulation of the breasts. In the American System of Obstetrics[9] there is an account of a girl eight years old, who suckled her small brother for one month; and references may be had also to women past the menopause, who have nursed infants. Even more surprising are the cases recorded of men who have suckled infants. The common occurrence of milk in the breasts of babies soon after birth is scarcely enough to the point to need comment. The changes taking place in the areolæ, that is, the pigmentation and development of the tubercles of Montgomery, are of perhaps greater value; but they, too, occur in diseases of the uterus, or ovaries, or breasts. Hence, they are not positive signs, though some authors consider that the true changes in the breasts of pregnancy can be differentiated from those of disease.[10]

14. Sympathetic changes,—morning nausea, mental derangements, et cetera.— The third class of presumptive signs are the very uncertain sympathetic changes; such as the morning sickness of the early months, the derangements of appetite, abnormal cravings for food, and disgust for the ordinarily tasty dishes, salivation, with its loosening of the teeth, changes in the mental characteristics and temperament of the woman, *et cetera*. All of these are extremely variable in their occurrence, and of no legal value.

[9] Amer. Syst. of Obstet., Vol. I., p. 36. I., p. 181; Winter, Gynäkol. Diag., p.
[10] Routh, Brit. Med. Journ., 1864, Vol. 68.

15. Positive changes in general.—The positive diagnosis of pregnancy depends on the demonstration of the existence of the products of conception. In the normal cases the presence of the fetus can usually be proved after the fifth month by what are called the positive signs of pregnancy; namely:

1. Palpation of the fetal outline.
2. Feeling the fetal movements.
3. Hearing the fetal heart-beats.

16. Fetal outline.— In the later half of the pregnancy it is usually possible, either by abdominal or vaginal palpation, to feel the parts of the fetus, and map out its outline in the abdominal cavity. Other masses in the abdomen may be mistaken for isolated parts of the child, but when the whole outline—head, breach, back, and extremities—are all clearly felt, as is not infrequently possible, especially near term, there is no other condition which can be mistaken for pregnancy.

17. Passive fetal movements,—ballottement.— From the fourth to the eighth month, on bimanual palpation of the uterus, the fetus can be felt floating in the liquor amnii; and when knocked away from the palpating finger in the vagina, by a quick movement of the wrist, and then allowed to resume its former position, the fetus will be felt to drop back and strike the finger again. This sign, called ballottement, may also be obtained in the later months, with the two hands on the abdomen, when the fetus will be felt to sink on the quick pressure, and return against the hand again. The fetus must be differentiated, on the one hand, from a stone in the bladder full of urine, and, on the other hand, from a pedunculated mass in the abdomen distended with ascitic fluid; but this distinction is not difficult if all the possibilities are kept in mind.

18. Active fetal movements.—In addition to these passive movements of the fetus, after the fifth month the active movements of the child can usually be felt as it kicks against the abdominal wall. These movements, too, are at times thought to be felt when really the mother or the examiner is feeling the muscular movements of the mother's abdomen or the peristaltic movements inside of the abdomen. But so long as there is any question on the point, the sign cannot be said to have been elicited.

19. Fetal heart sounds,—umbilical souffle, et cetera.—In the fifth month, too, the characteristic, well-established sign of the fetal heart-beat becomes audible; best known, perhaps, because most easily determined; as it needs little skill to hear the distant tic-tac of the

fetal heart, and count its beats, about one hundred and forty per minute. There are several other sounds, however, for which it should not be mistaken. The umbilical souffle, a soft, whistling sound, synchronous with the fetal heart, and probably due to obstruction in the circulation in the umbilical cord, therefore equally characteristic of pregnancy; the lub-dup of the maternal heart, which normally occurs about seventy-two times per minute, hence, easily distinguished from the more rapidly beating fetal heart; the uterine souffle, a soft, blowing sound, synchronous with the maternal heart, heard often during pregnancy and in some other uterine conditions; the bruits sometimes heard over the abdomen in some blood and vascular diseases of the mother, and synchronous with the mother's pulse; and the irregular sounds caused by the fetal movements, peristalsis in the mother's abdomen, *et cetera,* which could scarcely be confounded with the rhythmical fetal heart sounds.

20. **Summary of positive signs.**— When any one of these positive signs is clearly obtained, the diagnosis of pregnancy is established beyond doubt. But the active fetal movements and the fetal heart sounds are, of course, absent after death of the fetus in utero, so that the absence of these signs can not exclude pregnancy, and the palpation of the fetal parts might be the only one of these positive signs present in a case where there is no doubt of the existence of a fetus in utero.

21. **Abnormal pregnancies in general.**— In the not uncommon extrauterine pregnancies, and in other abnormal products of conception, where the fetus inside the uterus is represented by a bloody or a hydatidiform mole, the absence of a fetus from the uterus does not preclude the possibility of pregnancy. In fact, all the positive signs of pregnancy may be absent after the period when they are regularly found, and yet prove merely the absence of a normal pregnancy.

22. **Hydatidiform moles, etc.**— In the cases of degeneration of the fetus, and the formation of a fleshy, a bloody, or a hydatidiform mole (when, of course, the positive signs are all absent), the diagnosis depends on the demonstration of the existence of these peculiar products of conception. That diagnosis can be made only with certainty by the gross or microscopical examination of these products in whole or in part, taken from the uterus.

23. **Extrauterine pregnancy.**— In the cases of extrauterine pregnancy, where the fetus has its nidus outside of the uterine cavity, the normal signs of pregnancy, due to the changes in the size of the uterus, are greatly modified; the maximum size being that of about

two or three months pregnancy under normal conditions. Those due to the changes in the signs of the cervix and vagina are not so regularly developed; but the breast changes are developed in their usual course. In the later months of the pregnancy, if not disturbed, it is possible to identify the fetal parts and hear the fetal heart sounds in the abdominal cavity outside of the uterus. But, as a rule, these abnormal cases terminate before that period of development. In the cases terminating before the time for labor, if the mother survive, and no medical attention be given, retrogressive changes may take place. In these early-ended cases, absolute proof of the pregnancy could be obtained only through a surgical operation, or the examination of the decidua, if it be expelled from the uterus, though the diagnosis might be perfectly satisfactory to the medical man without such evidence. An extremely interesting case in connection with these extrauterine pregnancies is described by Winter.[11] A woman, after a single abortion, remained sterile for eight years. Then there came a period of suppression of the menses for five months till she felt the child kicking within her, and an increasing size of her abdomen. In the ninth month development ceased and retrogression began and continued for five years. At the end of that time she was operated upon for abdominal symptoms and the previous diagnosis of extra-uterine pregnancy confirmed by finding the remains of the fetus and placenta. This shows the possibility of pregnancy in an *a priori* unlikely case, where the diagnosis was made in spite of the empty uterus, and the passing of the time for labor without the birth of the child; and yet the operation, five years later, left no doubt of the pregnancy.

24. Summary.—To summarize, we see that the positive diagnosis of existing pregnancy can be made only in the second half, and then by the demonstration of the existence of the fetus by the three positive signs: the fetal outline, the fetal movements, and the fetal heart-beats; that in the early months the diagnosis may be made with great probability, based on the presumptive signs; the most important of which are the rhythmical contractions of the uterus, Hegar's sign, and the changes in the breasts; that the refutal of a charge of pregnancy cannot be made even if there is no fetus in the uterus, because the possibilities of an extrauterine pregnancy or uterine mole must be excluded. And this can be proved only by the examination of the uterine contents or the nidus of the extrauterine fetus.

[11] Winter, Gynäkol. Diag., p. 94.

25. Post-mortem diagnosis.— After death the diagnosis can be determined beyond question, if the pregnancy has advanced even a few days, by the finding of the products of conception in ovary, tube, abdominal cavity, or uterus. Though the difficulty increases the shorter the duration of pregnancy.

CHAPTER II.

DIAGNOSIS OF PREVIOUS PREGNANCY.

I. After early abortions and abnormal cases.

26. Signs in objects discharged from uterus.— The question as to whether or not a woman has ever been pregnant deserves the same attention as that as to whether she is pregnant at the time of examination. But the marks of the pregnancy do not always remain to settle the question. If the fruits of conception can be examined, that will prove the diagnosis; but unless seen at the time of emptying the uterus, these products are generally wanting. In the objects discharged from the uterus, we must distinguish as fruits of conception the fetus and the moles; and exclude blood clots, polypi, and the membrane of membranous dysmenorrhea. The fetus is easily recog-

nized after the first few weeks.[1] The bloody, or carneous, moles are blood clots forming between the chorion and the wall of the uterus, and may be either organized into fibrous tissue, or still remain blood clot. The hydatid mole is a cystic degeneration of the chorionic villi, appearing as a vast number of cysts. The blood clots or the firmer mass of a uterine polyp could scarcely be mistaken for a product of conception. The membrane of certain cases of dysmenorrhea resembles an early ovum; but the history of the cases in the two instances would be entirely different, and a microscopical examination of the membrane would settle the question beyond doubt by the absence of the chorionic villi from the dysmenorrhea membrane.

27. **Signs remaining in woman.**— The signs remaining in the woman depend upon the changes produced in her body by the pregnancy; and if that state comes to an end in the early months, before any marked changes have taken place, there may remain nothing to prove the previous state except slight increase in the size of the uterus, and the changes in its endometrium. Similarly in the cases of uterine mole and ectopic pregnancy: after a few days nothing may remain that can be demonstrated on the living woman to prove the pregnancy, though by curettage of the somewhat enlarged uterus it may be possible to find some of the decidual cells in the mucosa, which appear early in the pregnancy; and by a post-mortem examination it might be possible to demonstrate the development of the corpus luteum of pregnancy.

II. After second-half abortion and labor at term.

28. **In general.**— On the other hand, if the pregnancy continues into the second half, it leaves certain traces, depending for their distinctness on how near to term the pregnancy has continued, they being most clearly marked after labor at term. These signs appearing after labor near term may be classified as temporary, those which last only for a few days after labor; and persistent, those which continue for years to show the previous pregnancy.

29. **Temporary signs in general.**— Of the temporary signs there is, first of all, the general condition of the patient immediately after labor, marked by the exhaustion, the warm, perspiring skin, and possibly, the slow pulse. The abdominal wall is lax and shows the striæ of the recent distention.

30. **Breasts.**— The breasts show the changes from the virgin con-

[1] See §§ 91 *et seq., post.*

dition, produced by the pregnancy, as described under the diagnosis of existing pregnancy.[2] For the first day or two after labor at term the secretion of the breasts is scanty, thin, watery; contains the colostrum corpuscles, and has the characteristic composition of colostrum.[3] On the third or fourth day the breasts become somewhat more tense, tender, and the colostrum begins to give place to the whitish milk secretion, though the colostrum corpuscles may be identified in the milk until the ninth or tenth day. As the milk secretion increases, the breasts, if relieved of their secretion, become soft and pliable, and produce steadily increasing quantities of milk for several months. If not emptied, the breasts tend to become hard, lumpy, painful, and caked. Either secreting or caked breast is characteristic of the active mammæ; but, as we saw in the signs of existing pregnancy,[4] this condition may be produced by other conditions besides pregnancy, and therefore is not a positive sign of recent delivery, although extremely suggestive.

31. Parturient canal.— The parturient canal shows evidences of the passage of the child. For the first few days the vulva is gaping, the vagina relaxed and very capacious, even admitting the entire hand through the cervix and into the uterine cavity on the first day. The parts are likely to be covered with blood, vernix caseosa, and, perhaps, with meconium.[5] The secretion from them, especially from the uterus, is very profuse. Gradually they contract, approximating their previous size, and the cervix, which is the most satisfactory guide, becomes firmer; for a few days admits two fingers; at the end of the first week, one finger; and at the end of two weeks admits the end of one finger with difficulty. It is not completely closed for two months.

32. Uterus.— The uterus, immediately after labor, contracts down to about 12 centimeters above the symphysis pubis; then, as involution goes on, the uterus contracts till, usually on the sixth day, it is 4 to 5 centimeters above the pubes, and towards the end of the second week the fundus sinks behind the symphysis.

33. Lochia.— The most distinctive sign of recent delivery is the lochial discharge[6] from the interior of the uterus. For the first three of four days it is largely of blood, with some mucus, alkaline in reaction, and having an odor which is characteristic. It contains the

[2] See § 13, *ante*.

[3] Holt's Diseases of Children, 2d ed., p. 127; and Williams's Obstetrics, p. 319.

[4] See § 13, *ante*.

[5] Test for Blood, von Jaksch, Klinische Diagnostik, 5te. Aufl., 1901, § 93; Tests for Meconium, *ibid.*, § 319; Composition of Vernix Caseosa, Williams's Obstetrics, p. 132.

breaking down elements of the remaining uterine contents: bits of the placenta and membranes, if any have been left behind, and the remnants of the decidua, which can be identified under the microscope. After three or four days the lochia becomes thinner, paler, and less in quantity; after the tenth day it becomes more mucoid and opaque, and then gradually disappears. It can generally be identified as a milky discharge for two or three weeks.

34. Permanent signs in general.— There are a few signs that remain permanently. The relaxed abdominal wall retains its striæ, and the breasts retain their striæ. After a few weeks the fresh pink striæ become silvery. Both have only presumptive value. In the parturient canal are the signs which are generally considered to have permanent positive significance.

35. Parturient canal.— The hymen, which may have been slightly lacerated before delivery, is destroyed and represented by the tags of mucous membrane called the carunculæ myrtiformes. Yet Budin reports a case[7] where, after labor, the hymen showed scarcely more injury than the lacerations due to coitus. The destruction of the fourchette, and the laceration of the perineum are frequently found, and when found are almost equally diagnostic of delivery, if traumatism (as by vaginal operations on the uterus) can be excluded. Lacerations of the cervix are still more characteristic, changing the oval os tincæ of the virgin to the transverse slit of the parous woman. When large lacerations have been made their scars are still more characteristic. The size of the uterus is also changed by pregnancy from a small virgin uterus to the uterus of the multipara, which is usually about one third larger. Exceptionally the uterus is not increased in size after childbirth. Similar changes might be produced in the uterus by disease and operation, but very great probability of a previous pregnancy can be stated on the evidence obtained from the uterus some time after delivery; though the temporary signs—the great laxity of the parturient canal and the uterus, the presence of colostrum in the breasts, and the lochial discharge from the uterus—give the only absolutely positive proof of the previous pregnancy which can be obtained without a post-mortem examination of the organs, or an operation on the pelvic organs.

III. Post-mortem examinations.

36. Temporary signs in general.—If the woman is dead and a

[6] Williams, p. 306.

[7] Budin, Femmes en Couche et Nouveau Nés, Paris, 1897, p. 1. Quoted by Williams, p. 30, with illustration.

post-mortem examination is possible, further and conclusive evidence may be obtained. In addition to the evidence obtainable during life, the examination of the ovaries and uterus may now be made more closely. In the first few days after labor the lacerations in the vagina, the increased size and weight of the uterus, the lax, wrinkled peritoneum covering it, the hypertrophied muscular wall undergoing retrograde changes distributed uniformly throughout the upper segment of the uterus (as shown unmistakably by the aid of the microscope), the tortuous blood vessels of the uterus, and the condition of the mucous membrane, all bear incontrovertible proof of the previous state. Perhaps the most important of all is the condition of the mucous membrane, which shows the irregular surface of the detached decidua, and at the site of the previous attachment of the placenta an elevated area about 10 centimeters in diameter, with many thrombosed vessels. At the end of the second week the placental site is still blood-pigmented and elevated, but only about 3 or 4 centimeters in diameter.

37. Corpus luteum.— In the ovaries during pregnancy there is developed a body, the corpus luteum, which was formerly supposed to be characteristic of pregnancy, but has since been proved to be identical in origin (from the ruptured Graafian follicle) with the corpus luteum of menstruation. Moreover, not merely is the origin of the two bodies identical, but the development and the retrogression in both cases follow the same course. The only well-established difference between the two is in the rate and degree of the changes taking place. The corpus luteum spurium (of menstruation) reaches its maximum size in eight or ten days and then begins to atrophy, so that, at the end of six weeks, it is merely a scar, and scarcely to be identified. On the other hand, the corpus luteum verum (of pregnancy) develops like the corpus luteum spurium during the first week, but then continues developing in the same lines, though at a much slower rate, until the end of the third month of pregnancy, when it ceases to grow, and begins the retrograde changes which bring it, at the end of the ninth month of pregnancy, to about the same stage as the corpus luteum spurium at the end of its third week. There seems to be some difference of opinion as to the size attained by the corpus luteum verum. Most observers are content with saying that it is distinctly larger than the false corpus luteum. Longet in his Physiologie (Paris, 1850), says that sometimes the corpus luteum

verum is larger than the ovary itself. On the other hand, Orth[8] says the true are seldom larger than the false, and, in the early stages, the true are the smaller. And Kreis[9] considers the size of the two to be practically the same, though the periods of development of the two vary so much. He describes four cases at the end of pregnancy, one at 290 days, of the same size as a corpus luteum spurium of the twelfth day; and three between the 270th and the 285th days, where the development represented the third week of the menstrual corpus luteum.

Montgomery gives[10] a table of measurements of true corpora lutea at different periods of pregnancy which gives averages as follows, the measurements being taken in lines:

Age.	Size.	Age.	Size.
Few days,	7.5 x 5	7 months,	5.6 x 4
3 weeks,	9 x 5	8 months,	7 x 3
6 weeks,	10 x 7.3	9 months,	5.4 x 4.1
2 months,	8.5 x 5	10 months,	4.5 x 4
3 months,	7.6 x 6.6	11 months,	4 x 3.5
4 months,	8.3 x 6.3	12 months,	3 x 1.5
5 months,	7.5 x 5.5	14 months,	2.5 x 2.5
6 months,	7 x 5.3	18 months,	3 x 2.5

Cornil,[11] in an article on the histology of the corpus luteum, discusses the appearance in abnormal conditions where there is an excessive congestion of the pelvic organs, causing a congestion of the ovaries similar to that of pregnancy, and he finds a corresponding increase in size of the corpus luteum. In one case he found two corpora lutea of the same size, very large, in the same ovary. At another operation he found three corpora lutea of apparently the same age, and in a third case, four corpora lutea. In none of the cases had there been recent fecundation or pregnancy. In conclusion he says: "On ne peut distinguer des corps jaunes ainsi hypertrophies sous l'influence de congestions ovariennes, de ceux de la grossesse." Hence, what was formerly considered the sure proof of pregnancy has now become of scarcely any legal value, though, when taken in connection with the other findings in the body, and when examined during certain stages of pregnancy, it still has some weight.

38. Permanent signs,—size of uterus.—In the later months after pregnancy, in addition to the persistent signs existing in the living

[8] Orth, Path. Anat. Diagnostik, 5th ed., p. 460.

[9] Kreis, Arch. f. Gynäk., LVIII., p. 411, 1899.

[10] Montgomery, Signs and Symptoms of Pregnancy.

[11] Cornil, Annales de Gynaecol. et d'Obstet., LII., 1899, p. 380.

woman, we can, in the post-mortem examination, find several diagnostic evidences. The parous uterus has a weight of sixty, seventy, or more grams, and has a cervix about one third the length of the organ; the virgin uterus, on the other hand, has a weight of only about thirty or forty, sometimes as much as fifty, grams, and body and cervix are of practically equal length. The weight of the organ varies somewhat with the individual, but the general fact that the virgin uterus is distinctly smaller than that of the woman who has borne children holds throughout, with the exception of those cases where a lactation atrophy[12] is developed. This lactation atrophy is a hyperinvolution of the uterus that takes place in a small percentage of nursing women, makes its appearance in about the third month of lactation, and continues to the end of the suckling period, after which the uterus usually regains its larger size. Rarely is the lactation atrophy persistent after weaning. During the period of atrophy the uterus is as small as or smaller than the virgin uterus. At the end of the second month after labor the mucous membrane of the uterus has regained its typical nonpregnant condition, except at the placental site, which is still a slightly elevated, pigmented area, 1 or 2 centimeters in diameter. Even for several months longer the placental site can be identified.

39. Uterine walls.—The walls of the uterus also show characteristic changes. The thickness of the walls of the virgin uterus is about 10 to 15 millimeters, while in the parous uterus the walls are nearer 20 millimeters thick. In the walls the most characteristic and important change is found,—the tortuous blood vessels throughout the uterus, most distinct in the outer portion of the muscular layer. After labor these vessels undergo a compensatory endarteritis, as the blood supply to the uterus decreases. The vessel walls become thickened and show a hyaline degeneration. This change persists for years, and makes the diagnosis of a previous pregnancy sure.

IV. Menstruation versus pregnancy.

40. In general.—In these post-mortem examinations the condition of the uterus after a recent menstruation simulates somewhat that of the uterus two or three months post partum; but after menstruation the increase in size and weight is due to the thickening of the mucosa, not the muscularis. The site of the placenta, the enlarged, tortuous vessels, and the lacerations of the cervix are also evidences

[12] Williams's Obstetrics, p. 803.

of the previous pregnancy. In addition, the stage of development of the corpus luteum in the ovary would be of significance, although ovulation may not be coincident with menstruation. For example, if we examine a case one week after menstruation, if (as is usually the case), menstruation is coincident with ovulation, the corpus luteum spurium would be large and developing, while three months after labor the corpus luteum verum would be fibrous and retrogressing, similar to the false five or six weeks after menstruation, except that by then there would be a new corpus luteum spurium developing. If ovulation and menstruation were not coincident, but two weeks apart, then, one week after menstruation, the false body would still be larger and less degenerated than the true body three months post partum.

V. Number of pregnancies, and date of delivery.

41. Number of pregnancies.— The question of the number of pregnancies through which a woman has gone is not determinable. The first pregnancy that continues beyond its first half usually leaves marks; but after that no more can be counted with certainty by signs in the living. In the post-mortem examination the number of old, deep scars from the corpora lutea are, in general, suggestive, but have no numerical value.

42. Date of delivery.— The time that has elapsed from the date of the delivery at term may also be estimated in the first few weeks by the freshness of the vaginal lacerations, the size of the uterus, the character of the lochia, and the amount of colostrum in the secretion from the breasts, as described in the preceding sections on the diagnosis of previous pregnancy; but later there is nothing to give evidence of when the labor took place.

VI. Feigned delivery.

43. In general.— Delivery may be feigned from a variety of motives into which it is not necessary for us to enter. A medical inspection can hardly fail to expose the deceit, and usually the collateral proof is sufficient. We have abridged the following case of feigned delivery, on account of the wonderful ingenuity with which the imposture was conducted. Dr. Albert relates that he was called upon to see a poor girl of twenty-one years of age, in her last illness. In the presence of the physician and the clergyman of the district

she gave the following narrative and confession. Some eighteen months previously she entered the service of a married couple as housemaid. Her master, who was young and handsome, and assumed the title of baron, had no children. He succeeded, by tempting presents, in overcoming her virtue. He then represented to her that an important inheritance depended upon his having an heir; but having been married five years, and his wife still proving unfruitful, he had no longer any hope of having children by her. He then proposed to the girl that in case she would prove with child, and would allow him to cause it to appear as his own legitimate offspring, he would not only give her a considerable sum of money, but would also let her remain in the house of her mistress, in order that she might be always near her child. She accepted the proposal, and as soon as she found herself to be pregnant the preparations were made to carry out the projected imposture. The girl remained in the house, living in the most retired manner, while her mistress played the part of a lady in an interesting condition. She introduced wool and folded napkins under her dress, and thus gradually let her rotundity become apparent, rubbed her breasts frequently, in order to develop them, fainted in church, was often ailing, and sent for midwives and consulted them concerning her symptoms; physicians were also called upon, and every means taken to make public her happy expectations, so that no one had any suspicion that she was not pregnant. The traces of her monthly sickness were carefully concealed.

At last, in due time the young girl fell in labor, which was allowed to advance considerably before the midwife was sent for. In the meantime the bed was arranged in the following manner: A board was taken out of the bottom of the bedstead, and immediately above this opening a hole was made through the mattress and paillasse, large enough to allow the legs of a person to pass through and rest upon the floor. The bed was made in such a manner as to sink down towards the headboard, while it was elevated below the opening in the mattress. The mistress now leaned in a sitting position, with her legs through the opening in the bed, and supported against the headboard, while the servant lay across her lap on a feather-bed, in the attitude of labor. Her body was entirely concealed by the bed-coverings, which also concealed her mistress up to the neck. The midwife, upon her arrival, found the baroness, as she supposed, in the throes of labor; she made the necessary examination, promised a speedy deliverance, and gave the usual words of comfort. The lady, however, screamed lustily at every pain, the approach of which she became con-

scious of by the involuntary contractions of the poor girl's body; while the latter suppressed her cries as much as possible, except when she could mingle them unperceived with those of her mistress. A living male child was soon born, and the after-birth followed it immediately. While the nurse was busy in washing and dressing the child in another room, the girl escaped from the bed into an adjoining chamber. The baroness, before the return of the midwife, drew her feet up from the opening, covered it over with the bed, and stretching herself out upon it, forbade the midwife (who was desirous of ascertaining her condition) to touch her, except to wash off the blood with which she had previously soiled her thighs, declaring that she was in so much pain that she could not endure the slightest touch. The child was baptized, and on the second day put to the breast of the lady. As, however, very naturally, it found nothing there, the midwife was discharged, on the pretext that the baroness's own attendant could now take care of the child, which, immediately upon her departure, was confided to its own mother. The remainder of the girl's history, not being essential here, is omitted. Unexplained circumstances prevented the fraud from succeeding. The authors of the conspiracy fled, leaving the servant-girl sick and in a state of destitution. She died, from the effects of privation and exposure, shortly after having made this confession.[13]

Dr. Rüttel relates a case of pretended pregnancy and delivery, in which a girl, with the hope of persuading her lover to marry her, had stolen a child from eight to ten weeks old, and endeavored to pass it for her own. The fraud was easily detected from the entire absence of any signs of recent delivery, and from the child being evidently older than was consonant with her statement.[14] Where, as has in some cases happened, a child of the proper age has been substituted, the truth will be elicited by medical examination, or, where this cannot be obtained, the imposture is apt to be disclosed by some accidental or unforeseen circumstance.

[13] Henke's Zeitschrift, XLIV., p. 172. [14] *Ibid.* Erg. H. 31, p. 312.

CHAPTER III.

DURATION OF PREGNANCY.

I. PRESUMPTION THAT THE CHILD BORN IN WEDLOCK IS LEGITIMATE.

44. General rule.— The rule in this country, as in England, is, that when the husband has access to the wife, and the child is born within due time subsequent, no evidence, short of absolute impotence or indisputable absence on the husband's part, will justify a judgment of illegitimacy. The question of access, however, may be made to rest upon circumstances.[1] And among these circumstances may be taken proof of open cohabitation with another man, and repudiation by the husband's family of the alleged child.[2] When the marriage

[1] *Com.* v. *Shepherd*, 6 Binn. 283. As to presumptions of legitimacy, see more fully Whart. on Ev., § 1298, *et seq.*

[2] *Com.* v. *Stricker*, 1 Browne (Pa.) appx. XLVII.; see *Com.* v. *Wentz*, 1 Ashm. (Pa.) 269; *Stegall* v. *Stegall*, 2 Brock. 256; *Bowles* v. *Bingham*, 2 Munf. 442, 3 Munf. 599, and cases cited; Whart. on Ev., § 1298.

takes place when the mother is so far advanced in pregnancy that her situation must have been known by the husband, this will be considered a recognition of legitimacy.[3]

II. Normal duration of pregnancy.

45. Date of conception, in general.— Since the earliest historic times the normal duration of the period of gestation in woman has been held to be approximately nine calendar months, or ten lunar months. But the exact number of days necessary for the complete development of the fetus still remains open for discussion. The period is apparently not the same in all women, varying even in the different pregnancies of the same woman. The great difficulty in determining the duration of pregnancy arises from the fact that while the one end of the gestation can be determined by the day of delivery, the other end is always a matter of uncertainty. This uncertainty arises out of two factors: First, the time of conception, that is, the union of the spermatozoon with the ovum, is not coincident with coitus. Recent investigation leads to the belief that conception usually takes place in the Fallopian tube, and the time taken for the passage of the spermatozoa from the vagina to the tube has not yet been determined. Living spermatozoa have been found in the uterus and tubes one to two weeks[4] after coition; but what the minimum time for the passage is, is still unsettled. Hence, we cannot say how long after coition conception occurs. In the computation of the duration of pregnancy Winckel allows five days as the period of conception,[5] "Conceptionstermin," but that is only a careful estimate. Second, the appearance of the menstrual flow is not always coincident with the discharge of the ovum from the ovary. The general idea that ovulation is accompanied by menstruation is open to the objection arising from the not infrequent cases where pregnancy begins in a period of amenorrhea. Ahlfeld mentions the case of a woman who was thirty-two years old when she first menstruated, though before that time she had had numerous children; and Leviot cites the case of a woman who, during a period of fourteen years, had borne four children, and yet had seen no menstrual discharge. Recently Leopold and Mironoff[6] have made a most careful study of

[3] *Stegall* v. *Stegall*, 2 Brock. 256.

[4] Winckel, Samml. Klin. Vort. 292–3, p. 175; Auvard, Travaux d'Obstét., t. III.; Brouardel, Le Mariage.

[5] Ueber die Dauer der Schwangerschaft, Winckel, Deutsche Klinik, 1901, Lief. 7-9, Bd. IX. S. 1.

[6] Leopold and Mironoff, Arch. f. Gynäk. XLV., p. 506.

the condition of the ovaries in relation to the period of menstruation. They examined the ovaries of forty-two women in whom the menstrual history was accurately known. In thirty cases they found that menstruation and ovulation occurred at the same time; in eleven cases there was no sign of ovulation connected with the last menstrual discharge, and in one case ovulation had evidently taken place in the middle of the intermenstrual period. Their conclusions were that:—

1. Menstruation is usually accompanied by ovulation, but not seldom occurs independently.

2. Menstruation depends on the presence of the ovaries, and the proper development of the uterine mucous membrane, but is not dependent on the rupturing of the Graafian follicles.

3. Ovulation normally occurs at the time of menstruation, and needs several successive days of increased blood pressure in the ovaries; then it forms a typical corpus luteum.

4. Ovulation does occur, though seldom, independently of menstruation.

5. Often the delayed ovulation is due to the nonrupture of the unripe follicle. This forms a typical corpus luteum.

6. In the time of senile atrophy of the ovaries, normal follicles burst and form typical corpora lutea.

In view of these studies, if we estimate the duration of gestation as though ovulation took place at the time of menstruation, we probably will be correct; but we may be out by the entire menstrual period or any fraction of that time. That conception may take place either just after menstruation or just before the first missed period is commonly recognized, and used to explain the cases of apparently protracted pregnancies running just one month over the calculated time, and yet producing a not over-developed child. This possibility must always be considered in estimating the duration of the pregnancy.

46. Conclusions as to determination of exact duration.—In reference, then, to this uncertainty of the exact date of the beginning of pregnancy, a quotation from Auvard[7] seems appropriate: "Ce

7 Auvard, Travaux d'Obstétrique, t. III., p. 358. "The vagueness which naturally surrounds the moment of conception naturally reflects upon the determination of the duration of pregnancy. How is it possible to determine the duration of a condition of the commencement of which one is ignorant? To discuss the period of pregnancy, and attempt to establish it within one or two days, is to give one's self perfectly useless work. Such an attempt will be fruitless until the day when, by new means of investigation, we fix the moment of meeting of the male and female elements; that is to say, of conception. However, it seems that we may admit as an approximate and provisional figure nine solar months, or 275 days. By allowing ten days leeway,

vague que enveloppe le moment de la conception rejaillit naturellement sur la fixation de la durée de la grossesse. Comment dire la durée d'un état dont on ignore le commencement? Discuter la longueur de la grossesse et essayer de l'établir à un ou deux jour près, est donc se donner une peine parfaitement inutile. Cette recherche ne deviendra fructueuse que le jour, où de nouveux moyens d'investigation, nous fixon sur le moment de la recontée des deux éléments mâle et femelle, c'est à dire de la conception. Jusque à cette époque, qui ne paraît pas devoir être prochaine, suspendons toutes conclusions. Tuotefois il semble qu'on puisse admettre comme chiffre approximat if et provisoire, neuf mois solaires, ou 275 jours. En laissant 10 jours d'alea, cinq avant et cinq après, on a la durée probable de la grossesse oscillant entre 270 et 280, neuf mois moins cinq ou plus cinq jours."

47. Mode of reckoning duration of pregnancy, in general.—The modes of reckoning the duration of pregnancy are various. In some cases we have nothing to guide us but the signs that can be elicited from examination of the woman: the size of the uterus, the condition of the breasts, or the other signs that develop progressively during the pregnancy. In these cases the estimate must be still more indefinite than if we could believe the woman's statement about the cessation of the menses, the quickening, or the insemination.

48. From sensations of woman at coitus.— Much reliance is placed by some women upon peculiar sensations experienced at the moment of conception. In some instances, they are no doubt thus enabled to calculate the probable duration of pregnancy with certainty. Dr. Reid [8] says that he has occasionally met with cases in which this mode of fixing the exact time of conception proved, by the result, to have been correct; but that, in a much larger number of instances, the females were very considerably out in reckoning by trusting to this evidence. As a general rule, he says, "it will prove most fallacious, and in disputed cases of legitimacy it is of far too uncertain a character to rely on." We may add, that these sensations are undefined in their nature, are unperceived by a great many women, have no necessary connection with conception, and, if referred to at a late period in the pregnancy or after delivery, the evidence must be utterly unworthy of consideration. Hence, in questions of paternity,

five before and five after, we have the probable duration of pregnancy varying between 270 and 280 days. Nine months less five or plus five days."

[8] On the Duration of Pregnancy in the Human Female, Reid, Lancet, Lond., 1850.

the sensations alleged to have been perceived at the time by the woman cannot be regarded.

In an indictment for bastardy the mother will not be permitted to decide which of the connections about the same time was the operative cause of conception.[9] "The organs of conception, like those of digestion," said Chief Justice Lewis, "perform their appropriate offices without the volition of the female. She is not conscious, at the moment of the occurrence, of what has taken place. It is only by inference that she can fix the paternity of her offspring. If her intercourse has been confined to one individual, there is no difficulty in drawing a correct conclusion from the premises. But, if she has exposed herself to the embraces of several, at or about the time she became pregnant, she has placed it out of her power to draw any safe conclusions on the subject. Where two causes are shown to exist, either of which is adequate to produce the effect, and there are no circumstances to determine the mind in favor of either, the true cause must necessarily remain uncertain."[10]

49. From quickening.— Another mode of reckoning the duration of pregnancy is from the period of quickening. This sign also is of very little value for accuracy. While it usually occurs in the eighteenth to the twentieth week, it is not infrequently felt in the sixteenth week or even earlier; and on the other hand, often is not recognized till after the twenty-second week; and some women have maintained that they have felt no movements of the child up to the time of labor.

50. From cessation of menses.— The usual method of reckoning is from the cessation of the menses. The general rule of Naegele is followed by most obstetricians. According to that we count ahead nine calendar months and add seven days to the date on which the last menses appeared.[11] That computed date is the one on which labor may be expected; but a latitude of a week before or after that day must always be allowed to include the majority of the cases; only a very few will fall on that particular day. As a basis for that rule the period of gestation is taken as 280 days. Here it must be remembered that ovulation may be a month off from the appearance of the menstrual flow, as shown by Leopold's studies; also that pregnancy may begin after the menses have been suspended for some other reason for a longer or shorter period;[12] and still further, the

[9] *Com.* v. *Fritz*, 4 Clark (Pa.) 219; *Com.* v. *M'Carty*, 2 Clark (Pa.) 351; Wharton on Evidence, 1299.

[10] *Com.* v. *M'Carty*, 2 Clark (Pa.) 351.

[11] Williams's Obstetrics, p. 171.

[12] See § 3, *ante*.

menses may continue during a portion, or even the entire pregnancy.[13] However, from what have been supposed normal cases, various writers have estimated the duration of pregnancy from the last day of the menses as follows :[14]

Author.	Mean.	Minimum.	Maximum.
Devielliers	280 to 290	250	310
Reid	274 to 280	255	315
Murphy	281 to 287	252	326
Merriman	274 to 280	252	326
Gaston	267 to 273	246	308
Auvard	272 to 282	249	328

Reckoning from the first day of the menses, another group of writers give:

Author.	Mean.
Hecker	281
Lowenhardt	276
Hasler	281
Zollner	281
Voituriez	280

Estimating a mean from these cases, Auvard finds the average duration of pregnancy from the end of the last menses to be from 275 to 282 days, with a minimum of 246 (Gaston), and a maximum of 328 (Auvard). Auvard also attempts to determine any variation as due to the number of pregnancies through which the woman has gone, the duration of her menstrual period, and the duration of her intermenstrual period. None of these have any definite relation to the length of the pregnancy in the large number of cases from which the means are taken in Auvard's work.

51. **From ten monthly periods.**—Lowenhardt, in 1872, brought forward again the theory of Harvey, that the duration of pregnancy is ten menstrual periods.[15] He made observations on a number of women, noting the period of ten menses, and on that tried to explain the variations from the generally calculated period of 280 days. But following that we get no more accurate results than from Naegele's rule.[16]

52. **From single coitus.**— In a certain number of cases it is possible to date the pregnancy from a single coitus; and here the dura-

[13] See § 3, *ante*.
[14] Auvard, Travaux d'Obstét. III., p. 486.
[15] Archiv f. Gynäk., 1872, III., p. 456.
[16] Williams's Obstetrics, p. 172.

tion of pregnancy might be expected to be known within more accurate limits. But the variations here, too, extend over almost as great a range of time as in the cases in which the duration of the pregnancy is measured from the menstrual flow. The number of cases in which a single act can be taken as the starting point of the gestation is much more limited than the series of the previous section, but the following series have been reported:[17]

Author.	Cases.	Days.
Schlichting	456	269.8
Clay	...	274
Devielliers	...	275
Walichs	2	269
Leishman	1	295
Engelman	5	264.4
Montgomery	25	274
Hasler	25	272
Ahlfeld	425	270.37
Hecker	55	273.52
Faye	63	270.63
Veit	43	276.39
Zollner	160	267.46
Duncan	46	275
Stadtfeld-Bayn	65	271
Pinard	60	262
Voituricz	12	274.83
Rossie	1	317
Auvard	28	271
Oldham	9	277.6
Reid	40	276.5
Raon	21	272
Bouchacourt	1	276
"	1	287
Desormais	1	285

The mean derived from these, where the number of cases is known, gives for the 1,547 cases 269.7 days as the time after a single coitus that delivery usually occurs. The variations from this mean are a minimum duration of pregnancy of 242 days, given by Auvard, and a maximum of 317 days, given by Rossie. Auvard in his "Travaux d'Obstétrique," t. III., has estimated averages for primipara and multipara separately, and finds that no constant difference can be counted upon.

[17] Schlichting to Devilliers, inclusive, Trav. d'Obstét. III. Reid to Desormais, Winckel, Samml. Klin. Vort., 292–3. inclusive, Brouardel, Le Mariage. Walich to Auvard, inclusive, Auvard,

III. Variations in period of pregnancy.

53. In general.— The limits of variation from this usual duration of gestation are very important from a medico-legal standpoint. At the one end come the questions bearing upon the length of time husband and wife can be separated and still have the woman bear a legitimate heir to her husband; at the other end are the questions bearing on the point of how soon after marriage can a viable legitimate child be born. In France and in Austria the legal limits of pregnancy are fixed as from 180 to 300 days. In Prussia the limits are from 181 to 302 days. But that these limits are not satisfactory is brought out by an article written by Winckel in the Deutsche Klinik for 1901,[18] on the duration of pregnancy. This article represents the report of a committee of physicians appointed to investigate the question in its legal aspect. At the outset of his paper he enumerates many of the obstetricians and the period of gestation that they consider as the limit of protraction. As satisfied with the limit of 302 days, he names three men; with a limit of 308 days, a half dozen; and all of them had done their writing before 1870; as assigning a limit of 320 or more days, Winckel cites Crédé, Spiegelberg, Scanzoni, Devielliers, Joulin, Ahlfeld, Lowenhardt, Braun, Wachs, Cohnstein, Zollner, Ohlshausen, Auvard, Wickel, Parvin, Spiegelberg, Wiener, Barker, Kaltenbach, Range, Dewees, McTavish, and many others from 1853 to 1898.

54. Variations in other physiological functions.— That the period of pregnancy is not a fixed number of days might well be argued from the other physiological processes of the human body. Just as the matter of size, weight, coloring, appetite, frequence of micturition or defecation, or the length of the menstrual periods, varies in different individuals or in the same individual at different times, so the period of gestation may be expected to vary.

55. Variations in period of gestation in lower animals.—Again, the period of gestation in animals, where it can be noted without question, from a single impregnation, is well known to vary. In the mare the usual period of eleven months may be shortened to ten months, or prolonged to over fifteen months; in the cow, the nine and a half months may be shortened to eight or extended to eleven. In fact, Rainard[19] describes a case where the labor was retarded 125 days, and then the bull calf was of such size that it needed medical

[18] Lief. 7–9 Bd. IX., p. 1. Parturition des Femelles Domestique, t. I., p. 239.
[19] Rainard, Traité Complet de la

skill to extract the calf. In the goat and ewe a latitude of over three weeks must be allowed to the regular five months. In the sow a full quarter of its four months term; and in the bitch the same proportion of its nine weeks term must be reckoned on. In the cat not only the frequent two-week allowance must be made in the term of eight weeks, but in some cases there is a variation of fifty or even sixty-four days, and in the guinea-pig the usual term of thirty days may be prolonged to seventy-five. From these data, as given by Bouchacourt,[20] we see that in the lower animals, at least, the period of pregnancy is not limited to any invariable number of days.

56. Variations in period of gestation in woman, in general.—When we come to the question of protraction of pregnancy in women, we have again the difficulty of determining the date of conception. Dating from the menses is very uncertain. A single coitus is also uncertain, though within narrower limits.

57. Signs of protracted gestation.— As in the case of estimating the age of the under-developed fetus, so in these protracted cases, the most satisfactory guide in general is the stage of development of the infant, as represented by the length, weight, and organic maturity. If we take as normal-term infants those of 50 cms. length and 3,000 gms. weight, we may compare with them Winckel's statistics based on the length of the child, which are as follows:[21]

Length in Centimeters.	Days of Gestation.	Number of Cases.
48	271.3	203
49	278.4	272
50	277.1	352
51	282.3	211
52	283.6	123
53	286.5	34
54	290	18

And also his statement that of all the children born in the Munich clinic weighing over 4,000 gms., 11 per cent of the mothers considered the pregnancy to have lasted over 300 days after the last menses. These are suggestive, at least, of continued development in the protracted cases, and are interesting in comparison with the reports of the cases of protraction which follow. But, on the other hand it is not allowable from the size alone to make a diagnosis of protracted gesta-

[20] Bouchacourt, La Grossesse, Etudes sur sa durée et ses variations, Paris, 1901.

[21] Deutsche Klinik, 1901, Lief. 7–9, Bd. IX.

tion; for Winckel, in the same article, describes a case born 277 days after the last menses, and 263 days after conception, and 149 days after quickening,—certainly a nearly normal duration,—in which the child was 56 cms. in length, and weighed 4,659 gms. at birth.

58. Cases dating from menses.—If we date the pregnancy from the last appearance of the menses there are quite a number of cases reported as extending over 300 days, and all on good authority. Winckel, in the article referred to above, gives references to twenty cases of pregnancy reported since 1867, where the period of pregnancy has exceeded the limit of 302 days. Of these cases he gives the histories; and then, for various reasons, eliminates nine of them as being unsatisfactory. In the remaining eleven cases he finds six that give every method of determining the duration in harmony: the cessation of the menses, the time of quickening, the size and appearance of the child at the time of birth, and all the measurements of the child. Hence, he considers them unquestionable cases of protracted pregnancy. These eleven cases are as follows:—

1. Amer. Jour. Obst. Vol. XXXI., 1895, p. 842 (Stahl). Child born 302 days after the last appearance of the menses, 56 cm. long, weight, 5,600 gms.

2. Monatsschr. f. Geburtskh. XXXI., 1867, p. 321 (Credé and Martin). Birth 308 or 312 days after the last menses, 50 cm. long, weight, 5,125 gms.

3. Centralblatt f. Gyn. 1900, Nr. 29 (Riedinger). Child born 310 days after last menses, 64 cm. long, weight, 5,750 gms.

4. Wiener Med. Presse, 1885, p. 1094 (Rosenfeld). Child born 311 days after last menses, length, 59 cm., weight, 5,730 gms.

5. Zeitschr. f. Geburtsh. u. Gynäk. 1877, I., p. 44 (Martin). Birth 311 days after the last menses, craniotomy done, weight without brain, 7,470 gms.

6. Amer. Jour. Obstet. 1896, Vol. XXXIV., p. 846 (Sprengel). Child born 312 days after the last menses, 56 cm. long, weight, 5,542 gms.

7. Freidreich's Blatter, 1890, p. 91 (Pürkhauer). Child born 320 days after last menses, 53 cm. long, weight, 4,000 gms.

8. Amer. Jour. Obstét. 1896, Vol. XXXIV., p. 846 (Sprengel). Birth 320 days after menses, length 55 cms. weight, 5,280 gms.

9. Zeitschr. f. Geburtsh. u. Frauenkh., 1888, XV., p. 285 (Brosin). Child born 324 days after last menses, length, 60 cms. weight, 5,770 gms.

10. Lancet, July 30, 1892, Vol. II., p. 256 (Harris). Child born 326 days after menses, length, 67 cms., weight, 6,355 gms.

11. Centralbl. f. Gynäk. 1893, Vol. XVII., p. 816 (Bensinger). Child born 336 days after menses, diagnosis confirmed at end of first month of pregnancy, length, 58 cms., weight, 6,000 gms.

In addition to these eleven cases, Winckel in a later article in the Samml. Klin. Vorträge for 1901 cites from Schlichting's Thesis six other cases of protracted gestation, three of which exceed the period of 300 days, being 316, 318, and 344 days after the last menses.

59. Cases dating from coition.— If we estimate the duration of the gestation from the last coition we find six cases referred to in the last-named article by Winckel, where the pregnancy lasted more than 300 days after coition. The cases are cited from Schlichting[22] as follows:

Days After Coitus.	Days After Menses.	Length in Centimeters.	Weight, Grams.
303	300	50	3,650
303	318	48	3,312
312	290	53	3,000
314	214	52	3,650
320	316	54.5	4,000
334	344	55	3,875

In addition to these six cases from Schlichting, there are several others on record:

Auvard, in his Travaux d'Obstétrique, 1889, Vol. III., p. 443, cites a case protracted to 305 days after coitus.

Rossié, in the Amer. Jour. Obstet. 1886, Vol. XIX., p. 19, describes a case of pregnancy subsequent to a single violation, where the child was born 319 days after the rape.

60. Limit of protraction.— That these cases reported represent the limit to which pregnancy may be protracted is improbable. There seems to be no evident reason why pregnancy should last 334 days after coitus, and not be protracted another day. Nor does the limit of protraction after the cessation of the menses seem to be any more strictly limited; this same case of Schlichting's exceeding the next longest quoted above by six days. A number of other cases of protraction of pregnancy have been reported, some of them lasting over still longer periods of time; but there seems to be reason for ques-

[22] Statistisches über den Eintritt des erstens Menstruations. und über Schwangerschaftsdauer, Thesis, Munich, 1880.

tioning the conditions of the woman as to the other factors bearing upon the estimate of the duration. In Tucker's Elements of Midwifery (p. 149), reference is made to two such cases, one lasting 365 days and the other 372 days; and Meigs[23] cites one case of 420 days. Jaffe[24] describes one of 365 days, in which the development and measurements corresponded to the length of protraction.

Less probable cases have been reported[25] extending over 440 days, 476 days, and 500 days.

61. Protraction in abnormal cases.—In abnormal cases, where the fetus dies before birth, the protraction of the pregnancy seems to be without limit. Dewee's Compendium of Midwifery, 1837, 8th ed. quotes a case[26] where the fetus was retained for sixteen months after the expected labor, twenty-five months in all; and, at the autopsy of the woman, was found in utero. Auvard also cites two other cases:[27] one a case of so called "missed labor," where the dead fetus was found in utero fifteen years after its conception. (Case of Muhlbeck.) The other, a case of extrauterine pregnancy, where the dead and mummified fetus was retained in the abdominal cavity for fifty-seven years. (Case of Küchenmeister.)

62. Legal decisions.— The cases of protracted gestation which have been brought before the courts for legal decisions in this country and England have not been of these extreme limits. One of the most celebrated is the *Gardner Peerage Case* (See Lyall's medical evidence in the *Gardner Peerage Case*),[28] where the judge held that a period of 311 days was within the limits of possibility, but made a decision of bastardy turn on the character of the woman, and not on the medical possibilities. In another case[29] (*Commonwealth* v. *Elisha T. Hoover*), an indictment was brought for fornication and bastardy in the Lancaster county court of quarter sessions, Hon. Ellis Lewis, president. Here the duration of pregnancy (from March 23d, 1845, to January 30th, 1846), a period of 313 days after coition, was recognized by the court as having occurred, and the defendant was deemed guilty, and sentenced.

Reese[30] says that the United States courts have, in one case, al-

[23] Meigs, Obstetrics, the Science and Art, 1852, p. 462.

[24] St. Louis Med. & Surg. Journ. 1877, N. S. Vol. XIV., p. 345.

[25] Gould and Pyle's Anomalies and Curiosities of Medicine, p. 71.

[26] Dewee quotes from the New England Med. Journ., Vol. XIV., p. 269.

[27] Auvard, Travaux d'Obstétriques, III., p. 362. See also Festschrift to Carl Ruge, 1896, p. 38.

[28] London, 1826.

[29] Amer. Journ. Med. Scien. No. 24, New Series, Oct. 1846, p. 535.

[30] Reese, Med. Jurisprudence, 6th ed., p. 284.

lowed 317 days as a possible duration of pregnancy, but he gives no further reference to the case.

The legislature of Pennsylvania has sanctioned one year as the longest period of indulgence which the law allows a married woman who has a child in the absence of her husband. If she cannot show that he was in her company, or was within the colonies between the easternmost parts of New England and the southernmost parts of North Carolina, within twelve months next before the birth of the child, she is deemed an adultress, under the 4th section of the act of 1705.

63. Early viability, in general.— As to the early limit of pregnancy, we have again two points to consider: The first, as to what is meant by being born alive, and the second, as to viability. To the medical man the fetus still unborn is alive, so that an abortion at any period might produce a live fetus. From a legal point of view, if we take voluntary or reflex independent motion as a criterion of life, there is nothing much more definite to guide us. Berthod, in his thesis at the University of Paris in 1887, quotes the following from Tarnier et Budin:[31] "Dans certains cas les embryons ou les foetus expulsés par avortement donnent des signes evident de vie et si par hazard l'oeuf est resté intact, on les voit s'agiter dans le liquide amniotique; nous avons même recueillis une observation de ce genre dans un cas de grossesse gémellaire. Les foetus de quatre mois restent quelquefois plus d'une demiheure sans respirer; on peut alors suivre facilement les battements du coeur et ceux-ci se ralentissent dès que le foetus se refroidit, ils s'accélèrent quand on le réchauffe. Aussi lorsque ces foetus sont menacés d'une mort imminent par suite du refroidissement qui les envahit, on peut les ranimer et prolonguer leur vie en les plongeant dans un tasse d'eau à la température de 37–40° C., ainsi que nous avons en plusieurs fois l'occasion de le faire.

"Au cinquième mois les enfants respirent, mais d'une façon si in-

[31] Tarnier and Budin. t. II., p. 485: "In certain cases the embryoes or fetuses expelled by abortion give evidence of life; and if by chance the egg has remained intact, one may see the embryo moving in the liquor amnii. We made an observation of that nature in a case of twin pregnancy. The fetuses of four months remained for some time, more than half an hour, without breathing. It was possible to follow with ease the beating of the heart, and the beats grew slower as the fetus became cold, and more rapid as the fetus was warmed again. Thus, when the fetuses were in imminent danger of death on account of the cold to which they were exposed, they could be resuscitated, and their life prolonged by plunging them into a cup of water at the temperature of 37–40° C., as we several times had occasion to do.

"At five months the infants breathe, but in such an incomplete manner that they cannot live long. At the end of the sixth month respiration is established, and the infants may live for several hours or even days."

complète qu'ils ne tardent pas à succomber. A la fin du sixième mois la respiration s'établit et les enfants peuvent vivre pendant plusieurs heures et même plusieurs jours."

A case of great interest on account of the accuracy with which the date of impregnation was known is reported by Dr. Barrows,[32] of Hartford. Mrs. J. miscarried on the 18th day of May; lochia profuse and continued. June 18th, Dr. Barrows was called on account of increased vaginal discharge, probably the menstrual flow; this continued for a week or two before it ceased. She went from home on the 27th of June, and at this time she first indulged in sexual intercourse subsequent to her miscarriage. On the 18th of November she miscarried again, in consequence of overexertion. Dr. Barrows attended her on this as on the previous occasion. The ovum was expelled entire. The sac contained at least two pints of fluid. "The membranes were not ruptured for some little time, during which the movements of the child were active and vigorous. On rupturing the membranes, and exposing it to the air, it instantly gasped, or, perhaps I ought rather to say, uttered a cry so loud as to be heard distinctly at a distance of several feet, it being at the same time covered with the bedclothes. The cord was tied on its ceasing to pulsate, at the end of two or three minutes, then separated, and the child wrapped in warm flannels. As it continued to manifest the ordinary appearances of life, its condition was watched with great interest and care. It breathed with a kind of convulsive gasp at intervals of one or two minutes. The heart beat regularly for forty-five minutes. The child repeatedly opened its mouth, and thrust forward its tongue." It measured (it was a female) ten inches in length, and weighed fourteen ounces. The integuments were, for the most part, firm, and of a light color; the portion covering the abdomen was thin and of a reddish hue. The hair of the head was like down, the rudiments of the nails were plainly discernible, and the iris was entirely closed with the membrana pupillaris. The head was tolerably firm, but the frontal and the parietal bones were imperfect and widely separated. Dating from the first intercourse after the previous miscarriage, the age of the child was 144 days, or less than five calendar months. There is nothing in its size, weight, and development, as reported, inconsistent with the mother's reckoning and the facts related by the physician.

Further, Rawitz describes a complete ovum of the third month,

[32] Amer. Jour. Med. Sci., April, 1853, p. 380.

8 cms. in length, in which, after elevating the sternum, he watched the heart beat for four hours.[33] Whether the courts would recognize such a fetus as a living being has, so far as I can find, not been determined. From the medical point of view it certainly was alive for those four hours, but it is equally certain that it could not have been kept alive until a period of full development.

64. Evidences of age of fetus.—The length of gestation necessary to produce an infant capable of being nursed to mature years is also still open to discussion. In the reckoning of the duration of the intrauterine life of these premature infants, again we are at a loss for a date from which to start our calculations. We have seen that the cessation of the menses, in any one case, is a very uncertain guide, and in the majority of instances we do not have a single coitus from which to date; and if we had, that has been shown also to be capable of variation within the limits of from one to two weeks. Hence, in these estimates it is customary, and perhaps safest, to determine the period of gestation of the fetus by the degree of development to which it has attained. The most important of these developmental signs are the length and weight. In an article on the early viability of the infant, Charles[34] gives a series of estimates of the length and weight of the fetus at different ages, during the later half of pregnancy, and then gives his own estimate, which represents well the accepted figures for the size of the fetus at its different ages.

Charles's figures are as follows for months of thirty days each:

Months.	Gramms.	Centimeters.
6.0	1,000	35.0
6.5	1,375	37.5
7.0	1,750	40
7.5	2,125	42.5
8.0	2,500	45.0
8.5	2,875	47.5
9.0 (Term)	3,250	50

In the earlier months we may follow the figures for length given by Haase:[35] first month, 1 cm.; second month, 4 cms.; third month, 9 cms.; fourth month, 16 cms.; fifth month, 25 cms.; where the table is reckoned for lunar months of twenty-eight days.

Along with these measurements, the general development of the

[33] Rawitz: Uber die Lebensfähigkeit des embryos, Arch. f. Anat. u. Physiol. Phys. Abth. Suppl. Bd. 1879, § 69.

[34] Charles, Nouvelle Arch. d'Obstét. et de Gynec. 1893, VIII., p. 404.

[35] Haase, Charitè Annallen, II., p. 686.

fetus must be taken into account. (See section on abortion.) But estimating from the condition of the fetus as well as from the statements of the mother as to menses and coition, we have records of a number of premature cases that have lived for a longer or shorter period after the delivery.

65. Cases of early viability.— That infants born one or two months before term have been reared to adult life is doubted by no one. And with the introduction of artificial feeding and warmth, the age of viability has been lowered remarkably in the last few decades. Berthod, in his thesis to the University of Paris in 1885 (Les Enfants nés avant Terme. La Couveuse et la Gavage), gives the following table:

Months of Intrauterine Life.	Number of Cases Born.	Per Cent Alive on Discharge from Hospital.
6	14	30
6.5	34	53
7	77	63.7
7.5	84	78.7
8	177	85.9
8.5	107	91.6

Then Berthod adds that the cases under the seventh month that have survived have been very infrequent, and refers to the following cases:

Author.	Development. Weeks.	Weight. Pounds.	Length. Inches.	Lived.
Culingwood.	28	2	14	2 months.
D'Outrepont	27	1.5	13.5	11 years and more.
Rodmann	26	1.5	13	4 months.
Kopp	26	2.5	11.5	Several weeks.
Böker	26	1.75	14	6 weeks.
Holst	25	1.5	13	6 hours.
Cochrane	25	2.5	14	1 week.
Avan	24	1.5	18	4 months.
Barker	23	1	11	6.5 years.
Rochester	22	1	66	13 hours.
Willing	22	1.25	11	44 hours.
Home	18	1	8	8 years and more.

To this table of Berthod's several other cases may be added. Ahlfeld describes a case said to be of the twenty-seventh week, weighing 1,450 gms., and 39 cms. long, and quotes a case from Henke of the twenty-sixth week, 11 in. long, and "1 pfd. 11 lth. (Bairische Civil-

gewichts)" long. This child lived ten days. In the Jour. d'Accouchements for February, 1895, there is a discussion of a case reported to be a fifth-month fetus, which was still living at the time the paper was written, two years and a half after birth. The analysis of the evidence as to the age of the child there gone into leads to the probability that the child was a few days over six months in utero, about 180 days after the last menses. In that article are references to six other cases of six months and a few days intrauterine life. In the Lancet, April, 1852, there is the record of a case born on the 179th day of pregnancy, that lived four months, and then died of an epidemic disease. Dr. Barker describes a case born on the 158th day; weight, one pound, length, 11 inches; three years and a half afterwards it was still living.

66. Conclusions as to limits of variation.—From the foregoing facts we can but come to the conclusion that, though the normal period of gestation is 275 to 282 days from the end of the last menses, or 270 days from a single coition, the pregnancy may be protracted to 334 days after coitus, or 344 days after the menses; while, on the other hand, the shortest recorded pregnancy where the child has been carried through an existence of more than a few hours is Home's case, in the eighteenth week, 126 days, where the infant lived more than eight years.

CHAPTER IV.

SUPERFETATION.

67. Definition.—In connection with the question of the duration of pregnancy, treated in the previous chapter, the question arises as to how soon after the end of one pregnancy another may begin. And as there have been a number of cases reported in which the time between the birth of two infants at term has been recorded as less than nine solar months, we are confronted with the problem as to whether one pregnancy can begin before another has come to term. If one pregnancy can be superimposed upon the other, we have the condition known as superfetation. And directly allied hereto comes the question as to whether the two infants of a twin birth may have different fathers.

68. Ovulation during pregnancy.— In order for two pregnancies to be superimposed, not only must there be two inseminations, but there must also be two ovules set free from the ovaries of the woman, and the spermatozoa must meet and fertilize the ovules. The question as to whether ovulation continues during pregnancy has not much evidence to settle it. The prevalent opinion is that ovulation is suspended while the uterus is functionating. The only positive evidence of ovulation is the finding of the ovule or the ruptured Graafian follicle in the ovary. (The unimpregnated ovule would be extremely hard to find.) The ovaries in the majority of cases during pregnancy certainly show no traces of ovulation since the date of impregnation. But in the cat one case has been reported in which, during

pregnancy, Christopher[1] found a follicle on the point of rupture, and Auvard says[2] that Slavyansky, in a woman who died from rupture of a tubal pregnancy, found a follicle in the left ovary which was tense, as if about to rupture. This is rather scanty evidence, but it tends towards the view that in exceptional cases, ovulation may be possible during pregnancy.

69. Possibility of conception.— That insemination may take place is unquestioned; but then the possibility of the semen meeting the ovule remains to be settled. Our present views as to the changes that take place in the lining membrane of the uterus are to the effect that during the first three months of gestation, there is a certain amount of space between the decidua reflexa, which covers the ovum, and the decidua vera, which lines the uterus; but that during the third month the two decidual surfaces fuse. Hence, during the first three months it is possible, from an *a priori* point of view, for the spermatozoa to meet the ovum, if by any chance there be one in the tube, and a pregnancy may follow.

70. Evidence from alleged superfetation in normal cases, in general.— The cases upon which superfetation has been argued may be divided into three classes:—

1. Twin pregnancies, in which the children, by certain physical peculiarities, prove that they had different fathers; as where one is a white child and one a mulatto.

2. Birth almost simultaneously of two fetuses of unequal development.

3. Birth of two living children at a longer interval, but less than that required for the development of the second infant after the birth of the first.

71. Twins with different fathers.— Instances of the first class are not uncommon. In animals, instances of a bitch giving birth to a litter of pups, some of which resemble one dog and some another dog, are common. Instances where a mare has been covered by a stallion, and within a short period by an ass, and has brought forth twins bearing the marks of the two fathers, are also on record in the veterinary annals. And there are a number of cases on record where a negress has borne twins, one a mulatto and one a pure black.[3] Buf-

[1] Amer. Journ. Obstet., May, 1886.

[2] Auvard, Travaux d'Obstét., III., p. 472.

[3] Amer. Jour. Med. Sci., Oct., 1841. p. 315. For a large number of similar cases, see references in Beck's Med. Jurisprudence, Vol. I., p. 265; also Phil. Med. Exam. 1849, p. 523; and another in Am. Jour. Med. Sci., July, 1854, p. 290. Also, Mosely. Diseases of Tropical Climates, p. 111: and Casper's Wochenschrift. Jan. 8th. 1842; and Amer. Jour. Med. Sci., April, 1849, p. 549.

fon[4] cites the case of a white woman who, after having intercourse with a white and a negro, at an interval of a few hours, gave birth at term to a mulatto and a white child. And Bouillon,[5] after reporting a case where a negress bore a black and a mulatto, both equally developed, at a single birth, cites the case of a negress belonging to M. Bertodiere, a landowner in Morne à l'Eau, "Qui mit à monde trois enfans, dont un mulâtre, le second noir, et le troisième câbre; la mère et les enfans vivent encore, et ne laissent aucune incertitude sur la superfétation."

Analogous to these births of twins with evident different fathers[6] are the more common cases of twins from the fertilization of two ovules at one insemination, such as are represented by those that have separate amniotic and chorionic membranes, with two distinct or fused placentæ: the majority of cases of twins (977 cases out of 1,159 examined by Ahlfeld).

72. Simultaneous birth of two fetuses of different ages.— Instances of the second class are also not rare. Sunderland reports a case where a woman, at an interval of two hours, gave birth to two fetuses, one of the fifth month and one of the third month. Carpenter[7] reports the case of a woman who, within an interval of a few days, gave birth to a three weeks' ovum (embryo not seen), and a carneous mole 4 inches in diameter, which was reckoned as of about the third month. Tyler Smith[8] reports a case of a miscarriage of an

[4] Buffon, cited by Auvard.

[5] Bull. Fac. de Med. de Paris, 1820, VII., p. 512: "Who gave birth to three infants: the first a mulatto, the second a black, and the third a creole; the mother and the children are still living and allow no uncertainty as to the superfetation."

For a similar case, see also Tyler Smith, Lancet, April, 1856, p. 388.

[6] As incidentally bearing upon the question of a mulatto child from two white parents, the question of "telegony," or the effect of a previous sire upon children of a second father, should be mentioned. The condition in animals is well recognized, under the term of "throwing back." (See the paper read at Royal Med. Soc. Edinburgh, on March 1st, 1895; "Teratologia," July, 1895.)

In man the condition seems to be equally accepted. Gould, Anomalies and Curiosities, p. 88, says that a white woman pregnant by a black man and later by a white man will always show the taint of the black husband in the children of both white parents. He also says that children born in adultery resemble the legal father more than the real father, and children by the second husband resemble the first husband. An instance of this kind, or, as the author considers it, of maternal impression, is described by Clerc (Bull. Soc. Med. Suisse Romande, July 7, 1873) from the experience of Kuss in Strassburg. A white woman had a negro paramour with whom she had had sexual connection several times while in America. Returning to Europe she spent two years in a convent, and then married a white man. The result of the union was a dark-skinned child.

Maternal impression is substantianted by several other apparently authentic cases. (See Gould and Pyle's Anomalies and Curiosities of Medicine, p. 81.)

[7] Carpenter, Amer. Journ. Obstet., Vol. XX., 1887, p. 200.

[8] Tyler Smith, quoted by Carpenter.

ovum of the fifth month, and one of the first month. This woman had menstruated regularly during her pregnancy. Gauthereaux[9] describes a case in which there was a birth of twins each about 5 inches long (four and a half months), and then a few hours later a single birth of an infant 15 inches long (about seven and a half months). Godfrey[10] describes a case where, four days after the birth of a three and a half months' fetus, there was delivered a seven months' child, weighing four and a quarter pounds. Giles[11] reports the case of a dead child at half term and a seven and a half months' child, born three hours apart. Sinard[12] reports recently a very interesting case of birth on the same date of a six months' fetus, length 32.5 cms., that lived fifty-four hours, and a full term or somewhat over-developed child with slight hydrocephalus, that lived twenty-four hours. In connection with this case Sinard quotes a case cited by Nagele[13] of a woman who gave birth to a large girl infant, and a half hour later to a small girl infant, too weak to suck, that lived only two weeks. This second infant was 16 inches long and weighed two and a half pounds; it was estimated at seven months. Perhaps the most evident case of this class is that reported by Dufrènois[14] of the delivery, in the same day, of one child at full term and a fetus one inch long, in which the eyes and the rudiments of the extremities could be seen, and of which the age was estimated at six to seven weeks. The fetus was not dried up or changed in any way to cause suspicion of decomposition, but was in a small amniotic sac of its own. The woman admitted coitus in the fourth month, in the sixth month, and again towards the end of the seventh or beginning of the eighth month. After the last connection the woman felt nausea and the derangement of appetite common in the early months of pregnancy. Another very possible case is that of Addison,[15] where a woman was delivered of a healthy male child, and four days later, twins, the size of a pigeon's egg, were born.

73. **Two viable fetuses born within nine months.**—As instances of the third class, where fully developed infants are born at intervals less than that required for their development, we may quote from Genahl's thesis (University of Paris), of 1867, "Considerations sur

[9] Gauthereaux, N. Orleans Med. Surg. Journ., N. S., Vol. XVIII., 1890–91, pt. I, p. 426.

[10] Godfrey, Lancet, Lond., 1887, Vol. II., p. 959.

[11] Giles, Lancet, 1887, Vol. II., p. 565.

[12] Sinard, Le Bull. Méd. de Quebec, 1900, I., 463.

[13] Negalé, Le Bull. Méd. de Quebec, 1900, I., 463.

[14] Dufrènois, J. de Méd. et de Chir. Prat., Paris, 1833, IV., p. 65.

[15] Addison, Lancet, London, 1886, Vol. I., p. 477.

la Superfétation," three cases: An indefinite reference to a woman of Arles who was delivered of two children at term at an interval of five months; B. F., who, on the 20th of January, 1780, bore a living girl infant, of about the seventh month, and on July 6th of the same year a second girl baby of apparently full term development; and M. B., delivered on the 30th of April, 1748, of a living viable infant, and on the 17th of September following, of another infant at term. In these last two cases there was an interval of four and a half, and five and a half months between the births of two living and viable children. Another such instance is the case communicated to Foderé, by Desgranges, at Lyons, relative to the wife of Raymond Villard.[16] She was delivered on the 20th of January, 1780, of a living seven months' child. But the abdomen did not decrease in size, and three weeks later she felt the movement of a fetus in her abdomen. On July 6th (five months and sixteen days after the first birth), she was again delivered of a living female child. The milk now appeared, and she was able to nurse her offspring.[17]

74. **Interpretation of this evidence; twin compression.**— These instances of the second and third classes, however, must be compared with the cases of twin pregnancies, where one of the fetuses has been subjected to more or less compression. Such cases produce the so-called "fetus papyraceus;" often a dried and tightly compressed fetus. Sometimes less degrees of compression are evidenced, but still sufficient to cause the death of the child. In cases where this compression has been so great as to cause the death of one fetus, it may be easily recognized after birth by the appearance of the body. Thus, in a case referred to by Dr. Beck,[18] Mr. Ingleby says: "A few weeks ago, on examining a mature placenta, the expulsion of which was attended with severe hemorrhage, a fetus of four or five months, flattened, but not putrid, was found within the membranes, closely adherent to the uterine surface of the mass, and yet a full-sized living child, in connection with this placenta, had just been expelled." Duvernoy[19] also relates an instance in which the mother gave birth to a living female child, healthy and mature, and immediately afterwards to a dead fetus of about six months, with its head and face extremely flattened and deformed. Pouchet[20] gives the history of a most interesting case

[16] Foderé, Vol. I., p. 484.

[17] Many instances are on record of delayed birth of the second twin, the delay amounting to from a few days to a month. For instances of this kind see Gould and Pyle's Anomalies and Curiosities of Medicine, p. 142.

[18] Beck's Med. Jurispr. Vol. I., p. 269.

[19] Note Sur un Cas de Grossesse Double Parvenu à Terme, Strasbourg, 1834.

[20] Theorie Positive de l'Ovulation Spontanée, Paris, 1847.

communicated to him by Dr. Merrielle. A lady was delivered of a healthy and mature female child, which was soon followed by the placenta. Her labor-pains continued notwithstanding, and the next morning she expelled an entire ovum, containing another fetus. This fetus presented all the characteristics of a child of four months; it was seven inches long. Almost every part of its body bore evident traces of compression. Its head was flattened transversely to such a degree, that the sinciput presented a sharp edge, and at the temporal region its diameter was not more than six lines. The chest was also very much compressed. The upper extremities, and particularly the left hand, were greatly flattened. The appearance of the skin showed that the fetus had been a long while dead. It was of a pale brown color, and denuded of epidermis over a great part of the body. Dr. Streeter related a case to the Westminster Medical Society, in which one fetus was alive at full term, and the other blighted, having apparently perished at the third month. It had undergone very little decomposition, and was squeezed quite flat.[21] Dr. Perkins, of New London, in a letter to Dr. Porter, May 16th, 1840, relates as follows: That he delivered a woman of a healthy male child, at full term. The same night she expelled a fetus enveloped in its membranes, between four and five months old, entirely undecomposed and uninjured, except the head, which was compressed.[22] Dr. Lopez presented to the Medical Society of Mobile a specimen of a blighted fetus of the third month, discharged with a living child at full term. The skull was so completely compressed that the opposite parietal surfaces were in close contact. The whole body, in fact, was distorted and flattened by the pressure exercised by the other child upon it. It was not at all decomposed.[23]

Having thus seen the compression which one fetus in a twin pregnancy may exercise upon the other, it is not difficult to understand that the pressure may be sufficient to retard its growth without actually destroying its existence. If this compression becomes at a certain period so great that, without destroying the vitality of the fetus, it only permits the blood to reach it in an insufficient degree, one twin becomes arrested in its development, while the other goes on increasing until its maturity, when it is expelled. The remaining fetus, now

[21] Lancet, London, Oct. 30, 1841.

[22] Lopez, Am. Journ., Oct. 1846, where other cases will also be found illustrative of this fact. Dr. J. B. Davis gives a case of the unequal development of two fetuses in the same uterus. Ohio Med. and Surg. Journ., Sept., 1850. Another case in N. W. Med. and Surg. Journ., Nov., 1850; and another in New Orleans Med. and Surg. Journ., Sept., 1850. Consult, also, Montgomery, Signs and Symptoms of Pregnancy, article on secondary ovum.

[23] Amer. Journ., Oct., 1846.

relieved from the compression, grows with facility, and is born in its turn when it has reached maturity.

Further evidence bearing upon the effects of compression are seen in the double monsters in which the fetuses differ considerably in size. Such an one, it is stated by Dr. Duncan, exists in his collection.[24]

In the light of these compression phenomena the evidence of the second and third classes of cases quoted in support of superfetation must be taken as of less value than it appeared prima facie. Evidently a large number of the cases can be explained in other ways than by secondary conception. Williams says that in the cases of double-ovum twin pregnancy it is not unusual for one child to die at an early period and be expelled from the uterus soon afterwards, while the other may go on to full development.[25]

75. Evidence from superfetation in abnormal cases; double uterus.—It has been suggested that superfetation may be explained upon the supposition that the uterus was double; but although not a few instances of double uteri are on record, yet in all instances where pregnancy has existed, it occurred on one side only.[26] Moreover, in one case also reported by Dr. Oldham, of double uterus, in the unimpregnated half during pregnancy of the other side, menstruation did not occur. There is, however, one remarkable case, possibly an exception. A woman of Modena became pregnant in 1817 for the seventh time. Nine months afterwards she was delivered of a male child, healthy and fully developed. The placenta was expelled, and the woman regained her health and strength entirely. Still one half of the abdomen remained enlarged, and the movements of a fetus were clearly ascertained. One month after her last labor, she was again confined of a living male child, also well formed. The woman died later of apoplexy; and, on examination, the uterus was found to be double, but with a single cervix.[27] Hence, this may have been a case of pregnancy in the two halves of a double uterus at the same time, though the possibility of the two fetuses being on the same side is not excluded.

76. Coincident extra- and intra-uterine pregnancy.—That two ova certainly may be fertilized and carried at the same time is further attested by the cases of coincident intrauterine and extra-

[24] Amer. Journ., July, 1849, p. 247, from Med. Times, May 26th. For other cases, *vide* Med. Times, Dec., 1844; Henke's Zeitschrift, 1837; Beck's Med. Jur., Vol. I., p. 266; and Gaz. des Hôpitaux, Dec., 1854.

[25] Williams's Obstetrics, p. 330.

[26] Oldham, Guy's Hosp. Reports, Vol. VII., p. 551.

[27] Amer. Journ., Oct., 1852, p. 328.

uterine pregnancies, of which there are a number on record,[28] and there can be no theoretical reason why such cases of superfetation should be limited to any period of a primary extrauterine pregnancy, provided ovulation and insemination take place.

77. **Conclusions.**— If now, in conclusion, we look over the evidence for and against superfetation, we may adopt the classification of the cases as suggested by Auvard:—[29]

a. Superovulation, where, a few hours to a week after impregnation of one ovule, another is also impregnated.

b. Superembryonment, where one embryo has been in the uterus from a week to three months when the second is impregnated.

c. Superfetation, where one fetus has been in the uterus three months or more before the second is impregnated.

Of these three classes the first, superovulation, or superfecundation, is admitted by all authors. The second, superembryonment, is recognized by Tarnier and Chantreuil in their Traite d'Accouchement,[30] and it is not denied as a possibility by the majority of authors. The third, superfetation, is apparently impossible; for at the beginning of the fourth month the decidua of the ovum and that of the uterus are fused, and so would prevent the communication between the sperm in the vagina, and the ovule in the tube; while the cases cited to uphold a second impregnation after the third month may, perhaps, be explained by compression of the one fetus by the other. Superfetation, then, would only be possible in the case of a double uterus or an extrauterine and in intrauterine pregnancy. Proof of superfetation (after the end of the third month) is still wanting.

[28] See F. F. Simpson, "A consideration of Combined Ectopic and Intrauterine Pregnancy," meeting Amer. Ass. Obst. and Gynec., Sept., 1903. Extract in Journ. Amer. Med. Ass., Oct. 17, 1903, Vol. XLI., p. 981. Reference is made to 118 cases collected from literature.

[29] Travaux d'Obstét., p. 472.

[30] Vol. I., p. 543.

CHAPTER V.

ABORTION AND FETICIDE.

78. Definition.—The term abortion signifies to the medical man an emptying of the uterus of the products of conception from any cause whatsoever, before the period of viability of the fetus. To the legal mind the adjective "criminal" before it is usually assumed, and it means an interference with the course of the pregnancy, whether the uterus be emptied or not, with the intent of destroying the product of conception. The number of cases in which pregnancy does not go to term is probably one eighth as great as that in which it does complete its normal course.[1] According to the causes of the abortion we may classify them as (1) spontaneous or (2) induced; and the class of "induced" we must again divide into those induced (*a*) legally, for medical reasons, and those induced (*b*) for criminal purposes. The object of the law is to isolate the cases of induction of abortion for criminal purposes, so that we may dismiss the consideration of the spontaneous cases with a few words.

[1] Hegar's Beitrage z. Geburtshl. u. Gynäk., Stutt. 1898, I., 494.

79. Causes of spontaneous abortion.—The causes of spontaneous abortion may be looked for in the father in some cases; usually where he has some chronic disease, or chronic intoxication. In the mother, similarly, the chronic diseases lead to abortion, but many other causes also play an important part. All sicknesses of the mother increase the liability to abortion in proportion to the severity of the infection. And the local pelvic conditions are even more significant; especially disease, or displacement, or malformation of the uterus. Moreover, there are a certain number of cases where abortion comes on after such slight cause that they have been designated as due to an "irritable uterus." In that class are included the cases in which abortion follows some most inadequate cause. Brouardel[2] refers to two such cases in the practice of M. Tarnier, one of the most distinguished obstetricians of France, where a simple pelvic examination unintentionally produced abortion. Additional causes of abortion must be sought in the fetus and its membranes; its disease or maldevelopment or malposition. Death of the fetus is always expected to be followed by its expulsion.

80. Signs of spontaneous abortion.— The signs of a spontaneous abortion are, first, those of the cause of the abortion; and second, those of recent delivery, as detailed in chapter II., on the DIAGNOSIS OF PREVIOUS PREGNANCY.[3]

81. Causes of induced abortion, in general.—In the cases of induced abortion we have three classes of causes: 1, drugs; 2, general mechanical means; and 3, local mechanical means.

82. Use of drugs in general.— Many drugs have been used for the production of abortion, but practically all without success. Only one or two have produced the abortion without causing the death of the woman from the effects of the drug. Those generally used belong to the classes of irritants, purges, or emmenagogues.

83. Irritants.— Of the irritants cantharides is the only one much used, and its effect on the uterus is probably merely secondary to its irritation of the entire genito-urinary tract.

84. Purges.— Of the purges, those having a drastic effect, such as aloes, jalap, croton oil, and elaterium, may produce abortion by a secondary effect upon the uterus, but both of these classes of drugs act upon the uterus only after marked effects upon the other pelvic organs, and usually only after endangering the life of the mother.

[2] Tarnier et Brouardel, Inculpation d'Avortement, etc., Annal. d'Hyg., 1881, V., 304.

[3] See § 26, *ante*.

Brouardel[4] takes up this subject in considerable detail, and gives references to a number of cases where these drugs have been used for the purposes of criminal abortion; among them he cites two cases in which aloes given during pregnancy, in the usual therapeutic doses for catharsis, produced abortion.

85. Emmenagogues.— The third class of drugs, emmenagogues, is that perhaps most commonly used, and comprises ergot, rue, savine, tansy, yew, parsley, and the root of the common cotton. With the exception of ergot none of them have been known to produce abortion without either death, or, at least, the symptoms of intense poisoning in the mother. Many cases are on record of deaths from the taking of these drugs for their supposed effect upon the uterus.[5]

86. Ergot.— Ergot is the only drug which has been used successfully for the production of abortion, and many times when it has been tried it has been found wanting. However, Wood says[6] that Youatt states, that in a large experience upon many animals he has never known the drug to fail. Stillé[7] says that Diez, Oslere, Percy, and Laurent, found it to cause abortion in guinea-pigs, sows, rabbits, cows, and cats. M. Bodin[8] has reported an epidemic of abortion occurring among cows near Trois Croix, which he attributes to feeding upon ergotized grasses.

As for its effect upon the pregnant woman, while its action may be uncertain, still we have the evidence of a number of authorities that it does produce abortion. Thus, Mr. Whitehead (who by no means favors the view of its specific character) states, that in a case under his care, where, owing to deformity of the pelvis, it was necessary to get rid of the fetus in the fifth month of pregnancy, the ergot alone was employed, and at first with desired effect. It was given in three successive pregnancies, and in each instance labor-pains came on after eight or ten doses had been administered, and expulsion was effected by the end of the third day. Tried in a fourth pregnancy in the same person, it failed completely.[9] Hofmann has collected the experience of others, with this substance: Out of forty-seven cases of premature labor in which the ergot was employed, it produced abortion without the necessity of, or the employment of, other means, in

[4] Brouardel, L'Avortement, p. 127.

[5] See Brouardel, L'Avortement, Amer. Journ. Med. Sci., April, 1851, p. 529; Copeland's Med. Dict., art. "Abortion;" Med. Gaz., XXXVI., 646; Ann. d'Hyg. Pub., XXX., 120; Amer. Journ. Med. Sci., Jan. 1852, p. 140, and May, 1835.

[6] H. C. Wood, Therapeutics, 9th ed., 1894, p. 875.

[7] Stillé, Therapeutics, 2d ed., Vol. II., p. 585.

[8] Bodin, Journ. des Connaissances Méd., 1842.

[9] On the Causes and Treatment of Abortion and Sterility, Am. Ed., 1848.

thirty-two; while, in the remaining fifteen cases, it was given in addition to other means.[10] Dr. Ramsbotham says: "Egomet ipse tamen permulta vidi exempla, in quibus partus prematurus inductus fuit septimo vel octavo graviditatis mense peracto, solo secalis cornuti usu, ovuli membranis integris servatis, ore uteri occluso neque digito, neque ullo alio modo ad patefactionem excitato."[11] The same author has recently published a valuable paper on the induction of premature labor by the ergot, in which, we think, the reader will find conclusive evidence of the specific power of this drug. Premature labor was artificially induced by it in three successive pregnancies in one patient. A table of fifty-five cases is given in which it was successfully used.[12] Dr. Churchill says: "Ergot of rye is now pretty generally supposed to have the power of originating uterine contractions."[13] To these we may add the statement of Brouardel[14] from Krause of eighty cases in which ergot was used to induce abortion, in only eighteen of which it was ineffectual, but in three of which it caused death. Brouardel concludes from his studies that ergot is useless in the early months, and also in the majority of cases if labor has not set in; but grants it the ability to produce abortion in the smaller number of cases. Much of the difference of opinion as to the uterine effect of ergot depends, no doubt, upon the inertness of the samples of the drug used. It is well established, also, that independently of its effects upon uterine contractions, ergot affects the life of the fetus by depressing its heart's action, so tending also to the production of abortion. This slowing of the heart's action of the fetus, from 140 to 80 or 50, as well as the slowing of the heart's action of the mother, associated with gastrointestinal irritation, is characteristic of the action of ergot,[15] though a positive diagnosis of ergot poisoning would involve the finding of the ergot in the intestinal tract.

87. General mechanical means.— The general mechanical means which may produce abortion are: baths, hot or cold, sometimes sitz baths, sometimes general; general bloodletting; traumatism to any part of the body; exertion carried on to fatigue; and abdominal compression. The results of these factors is extremely variable.

87a. Baths, bleeding.— The baths, as a rule, are ineffectual, even the mustard bath proving useless in the majority of cases. Bleeding seldom has a tendency to produce abortion. In fact it is a remedy well

[10] Neue Zeitschrift f. Geburtskunde, Bd. 23.

[11] Parturition, London, 1841. Appendix. p. 639.

[12] Med. Times, Jan., 1854.

[13] Syst. of Midwifery, p. 279. See also Shapter, Prov. Med. Journ., April, 1844.

[14] L'Avortement, Brouardel, Paris, 1901. p. 147.

[15] Brouardel. L'Avortement, p. 149.

recognized as of therapeutic value to ward off a threatened abortion. On the other hand, when pushed to the point of producing syncope, it may interfere with the pregnancy. M. Depaul relates an instance in his own practice where a woman apparently suffering from headache, in two successive pregnancies applied to him for the purpose of being bled. He afterwards discovered that the bleedings in these two instances, and on one previous occasion, had led to the destruction of the fetus.[16]

87b. Traumatisms and operations.— The effects of general traumatism are extremely varying. In some cases where we can obtain a history of merely a misstep or slight stumble, abortion has followed promptly. In other cases where marked traumatisms have been sustained, either accidentally or with the intent of producing abortion, the pregnancy has gone on smoothly to its normal termination. Mauriceau[17] reports the cases of a fall from a third story window upon a stone pavement without interfering with the pregnancy. Mr. Whitehead mentions the case of a woman who, in the fourth month of pregnancy, received a severe blow on the skull with a hatchet, resulting in a fracture of the skull, for which she was under treatment for nine weeks. She was delivered of a healthy child at full term. Brilland Langardière[18] reports the case of a woman who, in the attempt to bring on abortion, was carried on horseback over the fields at full gallop, and then thrown to the ground; and this maneuver repeated several times, along with other proceedings, without producing the desired effect. Hofmann[19] reports the case of a woman who was placed upon the ground and beaten on the abdomen till she fainted, but the pregnancy continued uninterrupted. Again, sometimes surgical operations are needed in the course of the pregnancy; and amputations of the cervix of the uterus for cancer, ovariotomy, and the removal of fibroid tumors from the uterus itself have been performed without interfering with the pregnancy.[20] As to the abdominal compression, if it is of marked degree, and continued several days and nights continuously, it may produce abortion. And in Sweden, where the massage treatment is so much in vogue, there is a class of abortionists calling themselves "Bauchpressers," who guarantee to empty the pregnant uterus by massage for fifteen or twenty minutes every day.

[16] Traité d'Auscultation Obstétricale, p. 270.

[17] Obstétriques, etc., Paris, 1717, II., 198.

[18] De l'avortement provoqué, etc., 1862. p. 179.

[19] Nouveaux Eléments de Méd. Lég., 1881, p. 165.

[20] Verneuil, Revue de Méd., 1877, pp. 493, 588.

88. Local mechanical means.— The local procedures used to produce abortion are by all odds the most effectual. Among the various maneuvers of this class may be mentioned the vaginal douche, which usually has little effect, but may produce abortion; coitus, which certainly seems to be the cause of a certain number of miscarriages; and the wearing of a pessary, which possibly causes miscarriage in some cases. The foregoing may be accidentally used, or, at least, without the intention of producing an interference with the course of the pregnancy; but the uterine manipulations to be next described can scarcely be applied to a uterus in which the diagnosis of pregnancy is evident without the intent being equally evident. These are the dilatation of the cervix of the uterus, the rupture of the membranes, either with the finger or with some instrument; and the separation of the membranes from the uterine walls by any means, whether finger, douche, air injection, or instrument. These are the methods regularly used by physicians for the induction of labor for medical reasons, and are known to have that effect. In the hands of the ignorant they are often unsuccessful and associated with severe injuries, frequently costing the woman her life. In the hands of the skilled obstetrician at times they need to be repeated before bringing the desired result, and some of them are even then not devoid of dangers. Although the application of such means to the cervix or uterus usually indicates the intervention of a second person, yet, in some cases, the woman herself has succeeded in applying them.[21]

89. Signs of induced abortion in fetus.—The signs of induced abortion, in addition to those found in spontaneous abortion cases, include the evidences of the method used, as shown by the fetus or the mother. In the fetus drugs generally leave no trace.[22] The general mechanical means show merely the effects of the traumatism as transmitted through the sac of amniotic fluid, so that it would take a peculiar traumatism to leave any mark upon the fetus without producing a penetrating wound of the abdomen and uterus. Likewise, it is seldom possible to find any trace on the fetus of the local measures employed, though a certain number of cases have been recorded of injury to the fetus in utero. It has been held that during the first three months a spontaneous abortion regularly shows the discharge of the ovum

[21] Such a case is reported by Dr. Le Blond, Ann. d'Hyg. Publ. et de Méd. Lég., 1884, XI., 520, and Charpentier, p. 524.

[22] Chloral, chloroform, opium, and digitalis all show their effects on the fetus; potassium iodid has been demonstrated in the meconium of the fetus in cases where the mothers have been taking these drugs. See Friedrich's Blätt. f. gerichtl. Med. 1892, XLIII., 165.

as a complete sac; while, if the abortion has been induced, the sac is likely to be ruptured, and the embryo and the fetus discharged at different times. The discharge of the complete, unruptured ovum may not be the rule for the whole of the first three months, but it is generally conceded to be the usual form in the first six weeks, though even here a ruptured ovum could not be taken as very strong evidence of interference.[23] In the later months the instrument used to enter the uterus may produce some traumatism upon the body of the fetus, as in a case reported in the London Medical Gazette[24] of an abortion brought on by introducing a skewer into the uterus, the skewer perforating the skull of the fetus.

90. Signs of induced abortion in mother.— In the mother the evidences of the drugs may be found in some cases.[25] The effects of the general traumatisms will be those of wounds in general, as described in the chapters on wounds. The local methods used leave their mark in proportion to the lack of skill with which they are used. The douches may produce local ulcerations; the instruments used may be broken off in the uterus. Not a few instances of broken off twigs and branches of trees being found in the uterus have been recorded,[26] and several of bent wires which could not be removed after they had been inserted. Equally significant are the traumatisms to the vagina, cervix, and uterus made by instruments. In the most skilful hands at times the instrument introduced into the pregnant uterus perforates its wall; and in the hands of the unskilful, perforation of the vagina and cervix as well as of the uterus not infrequently occur. If the instrument is sterile, as the responsible operator's always should be, such a perforation may cause no harm; but if in the hands of one not acquainted with the methods of modern surgery, it usually carries infection with it. Yet Vibert,[27] who had occasion to examine seventy-two women who had had recourse to the good offices of a girl named Thomas, with a very extensive practice, says that on no one of them was it possible to find the least trace of injury to the genital organs.

90a. Rupture of the uterus.— To be distinguished from these perforations are the ruptures of the uterus occurring in the undisturbed course of pregnancy in a certain number of cases. The spontaneous rupture usually occurs in cases where the cause of the rupture is evident; most frequently during labor, and where there is some marked obstruction to the birth of the child; for example, marked deformity

[23] Friedrich's Blätt. f. gerichtl. Med. 1892, XLIII., 165.
[24] London Med. Gazette, Vol. XLV.
[25] See sections on toxicology.
[26] Brouardel. L'Avortement.
[27] Vibert, Précis de Méd. Lég. 1900, p. 436. Quoted by Brouardel, in L'Avortement, p 51.

of the pelvis of the woman; large size, malformation, or malposition of the fetus; or pathological changes in the uterus, such as congenital deformities of the uterus, or tumor growths in the uterus. On the other hand, in perforations due to interference with the pregnancy, there is usually no evident cause why there should be a rupture of the uterus, and no obstruction to the exit of the fetus.

The age of the woman having a spontaneous rupture is usually over twenty-five, and there may be a history of previous difficult labors.[28] In the perforation cases the age is not of significance, for the woman may be an old married woman who does not desire to be burdened with an increasing family, or she may be an unmarried girl who has indulged where she should not.

The period of pregnancy at which the rupture occurs in the spontaneous cases is most frequently at full term, during labor; sometimes, in the pathological conditions of the uterus, the rupture occurs in the early months, due to the great stretching of the uterine walls. In the perforation cases the injury rarely comes at term, much more frequently during the middle third of the pregnancy.[29]

As to the appearance of the rupture itself, in the spontaneous cases it is situated most frequently at the junction of the cervix with the neck, at the sides or across the fundus connecting the uterine ends of the two Fallopian tubes.[30] In the induced cases the injury usually is in a straight line with the vaginal canal, therefore involving most frequently the anterior lip of the cervix, the posterior wall of the uterus, or the fundus;[31] but instruments jabbed indiscriminately into the vagina in hope of reaching the uterus may lacerate any part of the uterus, or, for that matter, any of the pelvic viscera, or even the abdominal viscera. One case is reported of a woman who, in her attempt to produce abortion, lost her implement,—an umbrella rib,—which a few days later, at autopsy, was found to have perforated the liver, gone up through the diaphragm, and entered the right lung.[32] The size of the rupture is often distinctive. In the spontaneous cases the rupture is usually of large size, several centimeters in the long diameter, while those of the induced cases are usually smaller, and are characteristic in proportion as they approach the size of the in-

[28] Coutagne, Rupture of the Uterus, Lyon Medical, Paris, 1882. p. 54.

[29] Brouardel, L'Avortement, Paris, 1901, p. 49.

[30] Marsais, Des Blessures de la Matrice dans le Manœuvers Criminelles Abortives, Thèses, Lyon, 1890, Ser. 1, Vol. LV., No. 579, p. 86.

[31] Brouardel, L'Avortement, p. 214.

[32] Case of Thomas, cited by Kleinmann, Inaug. Disser. Berlin, 1881, Ueber die Verletzungen der Gebärmutter, etc.

strument that produced them. The size of the ruptures in the cases of induced labor are modified occasionally by the subsequent uterine contractions which tend to increase the size of the rupture. They are also modified by the inflammatory conditions which may be associated with them, and not infrequently the instrumental perforations are multiple, due to repeated attempts to empty the uterus. Moreover, the majority of instances in which the injuries to the uterus are due to instruments, certainly the majority of those done for criminal purposes, are infected, and it may be possible to trace the course of the instrument by a channel of inflammation, and at its end find a suppurating or gangrenous tear in the uterus, with either an acute inflammation of the uterus, or of the peritoneum, which is the most common cause of death in these cases.[33] On the other hand, in the spontaneous rupture cases the edges of the wound are generally clean, if not so sharply cut, and in these cases death usually follows, not from the infection, but from the hemorrhage into the peritoneal cavity.

91. Age of fetus.— In the examination of these cases another point of great importance is that of the period of pregnancy at which the abortion has taken place,—that is, the age of the fetus,—whether the pregnancy has not really gone to term; and, if it has not, whether the infant was viable at the time of delivery. The age of the fetus is estimated according to its period of development, and especially its length; though, of course, these are subject to a certain amount of variation, just as adults vary among themselves.

The following description of the fetus at the progressive stages of development are drawn from those of Williams's Obstetrics, Cunningham's Anatomy, and Brouardel's L'Infanticide:[34]

In the first week of the life of the ovum it is probably to be found in the Fallopian tube. The only ovum so far described as found in the tube is that of Hyrtl, in the uterine end of the tube, on the fifth day after the cessation of the menstrual flow. Peters has described one in the uterine cavity which he considers to be three days old. It is the youngest human ovum known to Williams. It measured 1.6 by 0.8 by 0.9 mm. in its diameters, presented a primitive embryonic area, amnion and chorion.

In the second week the ovum attains a size of 6 by 4.5 mm. In the early part of the second week the primitive streak appears, and in the earliest ovum described by Graf Spee, the primitive streak was

[33] See note 30, *supra*.

[34] Williams's Obstetrics, 1903, p. 128; J. D. Cunningham's Text Book of Anatomy, 1902, p. 62; Brouardel, L'Infanticide, 1897.

0.4 mm. long. At the end of the second week the neural groove appears, the outline of the heart becomes visible, and also the outlines of the fourteen protovertebral somites.

In the third week the cerebral and optic vesicles appear, the visceral arches and clefts, and at the end of the week budlike projections represent the beginning of the limbs. The yolk-sac becomes more and more constricted.

In the fourth week the embryo increases considerably in size, and becomes markedly flexed upon itself; the ears are just visible as small nodules. At the end of the first lunar month the embryo measures 7.5 to 10.0 mm. in length.

In the second lunar month the genital tubercle appears, the digits are differentiated, the external ear assumes an adult appearance, and the other visceral clefts disappear, the tail is reduced to a small nodule, and the embryo begins to look like a mature human being. At the end of the month the fetus has attained the length of 2.5 cm. to 3.5 cm. (1 inch to 1.5 inches) and weighs about 4 grams.

In the third month the eyelids close, the nails appear on the fingers and toes, and the sex can be distinguished on examination of the external genitals. At the end of the month the fetus is 7 to 9 cms. in length, and weighs from 40 to 70 grams. The placenta is formed, and the umbilical cord is inserted just above the pubes.

In the fourth month the skin becomes firmer and fine hairs are developed. The total length from vertex to heels is 16 to 20 cms., from vertex to coccyx is 12 to 13 cms., and its weight 100 to 150 gms.

By the end of the fifth month the hair on the body has become more apparent and a certain amount of typical hair has appeared on the head, and nails are distinct on the fingers and toes. The length of the fetus from vertex to heels is about 25 cms.; from vertex to coccyx about 20 cms. It weighs 250 to 300 gms.

At the end of the sixth month the skin presents a wrinkled appearance, and is of a dirty reddish color. There is a deposit of sebaceous material in the axillæ and groins, and the eyelashes and eyebrows appear. The length from vertex to heels is about 30 cms., and the weight about 650 gms.

By the end of the seventh month the skin is red and covered with vernix caseosa, and the pupillary membrane has just disappeared from the eyes. The length from vertex to heels is about 35 cms. and the weight about 1,200 gms.

At the end of the eighth month the skin is still red and wrinkled. The umbilicus rather higher from the pubis, but still not as high as at term. The length is about 42.5 cms. and the weight 1,900 gms.

At the end of the ninth month the body has become more rotund and the face has lost its wrinkled appearance. The testicles have descended into the scrotum. The fetus has a length of about 46.5 cms., and weighs about 2,500 gms.

Full term is reached at the end of the tenth lunar month. The average child[35] at term has a length of about 50 cms. (20 inches), and weighs 3,250 gms. (7 pounds). The skin is smooth and firm, the lanugo hairs have disappeared, and the hair of the scalp is usually 2 to 3 cms. long. The entire body is covered with vernix. The fingers have nails which project just beyond the flesh, and the toe nails are just even with flesh. In male children the testicles have descended into the scrotum. In females the labia majora conceal the rest of the genitalia. The umbilical cord is inserted 1 to 2 centimeters below the center of the body. The bones of the head are well ossified and in contact except at the fontanelles. The head measures 11.5 cms. in the occipito-frontal diameter; 13.5 cms. in the occipito-mental; and 9.0 cms. in the biparietal diameter.

In the lower epiphysis of the femur the center of ossification has usually attained a diameter of 2.5 to 5.0 cms. This center of ossification of the femur has been given a great deal of weight in determining the maturity of the infant. According to Brouardel it appears the last two weeks before term in 90 per cent of the cases; before the last month he has never found it; at nine and a half lunar months he found it in five of twenty-six cases; during the last two weeks of the ninth month he found it in nine of twenty-one cases; at term he found it in 175 of 182 cases; and in one case of an infant born at term who had lived nine days he was unable to find any trace. Once in an infant at term and once in an infant of nine and a half months, he found the center of ossification in the condyle of only one femur. Hofmann[36] in one instance found the center of ossification of the femur 4 mm. in diameter in a fetus 45 cm. long; and reports one found by Hassenstein[37] in a child 40 cm. long. This center has been found absent in the mature infant at term in twelve of 102 cases by Hartmann,[38] and in fourteen of 413 cases by Liman.[39] Hofmann him-

[35] For variations in the size and weight of infants at birth in extreme cases see Gould and Pyle's Anomalies and Curiosities of Medicine, p. 347, where the extremes of a one-pound child, seven to eight inches long, and a twenty-three and three quarter pounds child, measuring thirty inches in length, are mentioned.

[36] Hofmann, Gericht. Med., 1903.

[37] Hassenstein, Zeitschr. f. Medicinalb., 1892, p. 129.

[38] Hartmann, Beitrag. Z. Osteol. d. Neugeborene, Tübbinger, Diss., 1869.

[39] Liman, Gericht. Med. p. 848.

self has found this center of ossification in a larger number of cases only 2 to 3 mm. in diameter.

In the inferior maxilla the degree of ossification is also significant, but not of as great value as that of the epiphysis of the femur. In the jaw at term four alveolar partitions for the teeth are usually found, sometimes three and sometimes five. It serves well as a means of control of the condition found in the femur. These bony conditions are of great value when only a fragment of the body of the infant can be recovered, or when only the skeleton remains. Soon after birth of the mature infant, and often before the umbilical cord is tied, the child cries and fills its lungs with air, after which it continues to breathe. It passes its urine, and rids the bowel of meconium not long after.

The signs of immaturity in the fetus approaching term are the lean body, and delicate, wrinkled skin. The head seems too large for the body, and the skull too large for the face; the bones of the skull are thin, movable, and separated from each other by wide sutures, the hair of the head is scant, short, and silvery; the eyelashes and eyebrows are downy. The pupillary membrane is present, the ears are thin, and their cartilages incompletely developed. In males the scrotum is very red and the testicles not descended; in females the lips of the vulva stand apart and the large clitoris protrudes. The child breathes with difficulty, and cries weakly; it sleeps most of the time, sucks with difficulty, and shows no desire for food.

The development of the different organs of the body, as found on autopsy, especially the centers of ossification of the bones, and the different portions of the central nervous system, are very significant in determining the age of the fetus, but for their sequence the works on embryology must be consulted.[40]

92. Medical abortion.—The production of abortion is recognized as a legitimate medical practice for the purpose of avoiding the risks that in special cases would attend the delivery of the child at full term. The indication for the induction of labor in such cases is usually a contraction of the mother's pelvis, or some disease of the mother; such as threatened, or present, eclampsia, hyperemesis, placenta prævia, or some other condition threatening the life of the mother. In all such cases the physician should associate with himself, if possible, some other reputable colleague before inducing the

[40] Also Letourneau, Quelques Observations sur les Nouveaux-nés, Thèses de Paris, 1858. Also Toldt, Ueber die Altersbestimmung menschlichen Embryonen, Prager med. Wochenschr. 1897, p. 121.

labor; in this way he will not expose himself to reproach, suspicion, or prosecution. The differentiation between the legal and the illegal induction of labor may depend largely upon the secrecy with which the criminal induction is carried on, and the openness with the physician operates with the evident intent to save the mother.

93. Summary of evidence of criminal abortion.—It may be worth while, at the close of this chapter, to summarize the evidence pointing towards the criminality of an abortion. First, there is the secrecy of the woman in concealing her pregnancy, or the open avowal of her intent to get rid of the fetus; next, there is the want of any evident cause for spontaneous abortion, and no reason for inducing labor for medical purposes. The period of pregnancy is usually the fourth, fifth or sixth month. The means employed are often multiple, beginning with the drugs that have a reputation as abortifacients, including the general methods of overexertion and straining, perhaps abdominal traumatisms, and, where successful, usually ending with uterine manipulations. The fetus may rarely show evidence of the means employed; the mother more often shows the lacerations of the internal genitals or uterus, due to the local procedures. These lacerations of the mother are not infrequently multiple, and are the more characteristic the nearer they approach the size of the instrument causing them; they may be distributed over any part of the uterus, but are more often found in the posterior portion of the uterus, the fundus of the uterus, or in the cervix. The wound is often infected, and the origin of an acute inflammatory process of the uterus or peritoneum, which is perhaps the most frequent cause of death in these cases of criminal abortion.

CHAPTER VI.

INFANTICIDE.

I. In general.

94. Definition.— The term "infanticide" is used to denote the killing of a newborn child. The term "newborn" has no definite time-limit, but merely implies recent birth. Brouardel considers the term "newborn" best defined as limited to the time during which the birth of the child has not been legally recorded or made public.[1] After that time the child's life could not be taken without its being known to more than one person. In one case the charge of infanticide was allowed thirty-one days after birth;[2] but, as a rule, the infanticide

[1] Brouardel, L'Infanticide, p. 11.
[2] Case of fille Demange, Briand et Chaudé, I., 345.

occurs during the first day or two after birth, and in cases in which there is a question as to whether the child has lived at all. Hence, the first point to be considered must be the proof that the child was born alive.

II. Evidence of death in utero.

95. Long before delivery.— If the fetus has died in utero some time before labor, it shows marked changes, such as maceration, mummification, or putrefaction, depending upon the conditions under which it has existed.[3] But in these cases there can be no question as to infanticide.

96. Just before delivery.— A child which is born dead, perishing shortly before its birth, will, in most respects, resemble the live-born child; the external appearance may show the hair wet and closely agglutinated, the ears compressed against the sides of the head, the eyes closed, and perhaps a bit of watery blood escaping from the nose; but these signs are not of any positive value. The condition of the lungs, on the other hand, is of considerable value. When the thorax is opened the lungs are found in its upper posterior portion, almost covered by the heart and thymus, their surface smooth, showing no signs of lobulation or of the air cells, their color a bluish red, similar to that of the liver or the spleen, and they have the consistency of muscle. Their length is greater than their width, their edges are rounded, and they do not crepitate upon incision. The measurements of the thorax, shape of the chest, position of the diaphragm, and absolute weight of the lungs, all depending upon the expansion of the lungs, are signs of minor importance, and are of slight value, because they cannot be determined within a reasonable limit of error, and because there is no standard of fixed value to which they must come.

III. Evidence of live birth.

97. General.— If the child is born alive we have the evidence of life vaguely shown in certain general conditions, and absolutely proved by the conditions of the respiratory and circulatory systems. Of the general signs, the dry, clean hair, the slightly prominent ears, the half-open eyes, the expanded thorax, in which the diaphragm has descended from the fourth or fifth rib level to that of the sixth or seventh, the discharge of meconium and of urine, the weight of the

[3] Brouardel, L'Infanticide, p. 40.

liver or of the lungs as compared with that of the entire body,—these have all been described as significant in the determination of live birth, but they are all unreliable. The condition of the middle ear contents,— a gelatinous mass before birth, and an air bubble, or any inspired foreign substance, after birth, is indicative of attempts at respiration, and, therefore, of live birth; but the test requires delicate manipulations, and then very slight value can be given to the results obtained.[4] There are also a certain number of changes which take place in the child after birth, and show the development of the infant. These are considered in the section that treats of the age of the fetus at the time of death.[5]

98. Respiratory tests.— In the respiratory system are the best recognized and authentic proofs of life. The open, rounded larynx and the distended lungs, with air in the air vesicles, are characteristic of respiration. With the first respiration the lungs expand from their position behind the heart and thymus, and now cover these organs. They become filled with air, and so change in color from the dark, bluish red, to a rosy red, marbled by the fine blood vessels that are filled with blood by this first inspiration. The surface shows the markings of the lobules and air vesicles, the tissue crepitates between the fingers, and floats in water. Under the microscope the character of the tissue has changed from the spongy structure of the lung which has never breathed to that of the characteristic air cell and air vesicle structure of the dilated lung.

On examination with the Roentgen rays the expanded lung is found translucent, while the expanded lung of the stillborn infant does not allow the penetration of the X-rays. Brouardel[6] gives a number of photographs of lungs, both expanded and unexpanded, taken with the X-rays, which show distinctly the difference between the two conditions; but he does not consider the test as reliable as that of the specific gravity.

99. Static tests.— The static tests, or comparative weights of the lung before and after respiration, may be considered from two points of view: first, as to the absolute weight, and, second, as proportionate to the entire body weight. There is no question but that the lungs do increase in weight with the first inspiration, due to the inflow of the blood. But the absolute weight of the lungs varies so greatly with the size of the child that no definite weight can be established above which the infant can be said to have breathed, and below which it can be said

[4] Brouardel, L'Infanticide, p. 68. See also § 377, *post*.

[5] See § 109, *infra*.

[6] Brouardel, p. 55.

not to have breathed. Secondly, while the weight of the lungs before breathing may, in general, be considered to be about one sixtieth of the entire body weight, and after breathing about one thirtieth of the body weight, still this proportion is too inexact to be admitted as more than suggestive of respiration. And if there is doubt in the cases in which the child has respired fully, these tests are to be relied upon still less where the respiration has been incomplete.

100. Docimasia pulmonum hydrostatica.— The hydrostatic lung test, or docimasia pulmonum hydrostatica, is the test upon which the greatest reliance is placed, and upon which, in the majority of cases, the decision of the court turns. It depends upon the decrease of the specific gravity of the lungs when the air enters them with the first respirations. Brouardel, in describing this test,[7] says that there are five steps which should always be gone through with, and that if all of them are positive, there is no doubt that the infant breathed. The five steps are as follows:

1. In the autopsy, after opening the thoracic cavity and neck, clamp the upper extremity of the larynx and œsophagus, and cut with the knife just above the clamp, through the pharynx, down to the vertebral column. Follow the vertebral column down to the diaphragm, removing all the thoracic organs together, and then cut out just above the diaphragm. Without letting go of the larynx and œsophagus, put the entire mass in the water with the larynx down, remove the clamp, and then let go. The air passages need not be tied if the work is done carefully, and the larynx put under water first. If the infant has breathed fully the whole mass floats frankly.

2. Remove the heart, thymus, and œsophagus, and put the respiratory tract by itself in the water. Again the lungs will float without question if the infant has breathed. If he has not breathed, they will sink to the bottom, and stay there.

3. Cut the lungs into pieces, hold them under water, with the cut surface up, and compress. Air bubbles and bloody serum are expressed, and these float, making red spots on the surface of the water, if the child has breathed.

4. After compression of the lungs, as in the preceding step, the pieces of lung still float if the child has breathed. If he has not breathed they sink.

5. When the lungs float, take one of the pieces, squeeze it, com-

[7] Brouardel, p. 56.

press it, and grind it in a mortar. It will still float if the infant has breathed.

101. Objections to docimasia pulmonum hydrostatica on the positive side.—If the docimasia pulmonum is positive, there is no doubt that the infant breathed; but that does not establish the proof of live birth. For, in the eyes of the law, the breathing must take place after the birth of the child, and there are many cases beyond question in which the infant has begun to breathe before being completely born; that, is, while some part of its body is still inside of the mother. After the birth of the head, and before the birth of the rest of the body, the beginning of respiration is by Ritgen, a German obstetrician of high standing, considered not even exceptional.

101a. Vagitus uterinus.—The more exceptional instances in which the infant has breathed while still completely within the uterus, vagitus uterinus, have also been described in cases beyond dispute;[8] but usually in those cases where, during labor, version has been begun, and air introduced into the uterus with the hand of the obstetrician; and always in tedious labors, and after the rupture of the membranes. Moreover, the extreme rarity of the cases is evident from the few authentic cases on record, as well as from the incredulity with which the fact has been received by some authors. Hence the probability of its occurring in any case in which the labor has been concealed is exceedingly slight.

101b. Freezing and alcohol hardening.—The objections have been raised that the docimasia pulmonum is a test only of specific gravity, and any process which decreases the specific gravity might give the same results. Such processes may be exemplified by freezing or hardening the lungs in alcohol, or the presence of any gas in the lungs. The frozen lungs would be distinguished without any difficulty by their temperature, firmness, brittleness, and most distinctly by the fact that after thawing out in the water in which they were floating they would return to their previous specific gravity, and sink if the infant had not inspired. Lungs which have been preserved in alcohol would have a characteristic odor, and while they might float at first, if they were unaërated they would sink as soon as the alcohol became diffused into the water in which the lungs were floating. Of the cases where gas or air from other sources have been proposed as

[8] Marc, Dict. des Scien. Méd. (in 30 vol.) art. Infanticide; Landsberg, Henke's Zeitschr. Erg. Heft, 38, 1849; Brit. and For. Med. Chir. Rev., Jan., 1850; Constatt's Jahresberich. f. 1853, VII., 19; Kristeller, Vrtljschr. f. d. prakt. Heilk. No. 88, p. 121.

invalidating the docimasia pulmonum, three classes of cases have been suggested: emphysema, inflation, and putrefaction.

101c. Emphysema.— Emphysema is certainly never found in lungs which have not respired, and whether it ever exists before birth is a matter of great doubt. Taylor[9] says that in examining the lungs of a great number of children, he has never met with any appearance resembling what has been described as a state of emphysema, independently of respiration and putrefaction. Toulemouche[10] regards the occurrence of emphysema as very rare, and says that when it is present it is never sufficient to give buoyancy to lungs which have never breathed. Casper[11] says that "as yet not one single well-observed and incontestable case of emphysema developing within the fetal lungs has been known, and it is, therefore, not permissible in forensic practice to ascribe the buoyancy of the lungs to this cause." Brouardel does not consider the possibility as worthy of mention.

101d. Artificial inflation of the lungs.— Artificial inflation is a purely theoretical objection; for, in a case of infanticide, who would make the attempt to have the child appear as live-born by inflating the lungs? But still the differentiation of the two conditions is easily made. In the insufflation cases usually only one lobe, the upper of the right lung, is dilated, it is often associated with an interlobular emphysema due to the violence with which the air was forced into the lungs; and at the same time air is forced into the stomach. Moreover, what is still more characteristic, when air is thus artificially introduced into the lungs no pulmonary blood circulation is started up; hence, the lung remains white and anemic, not the rose color of the lung that has breathed; it does not increase in weight, there is no, or very little, blood to be found in the capillaries of the pulmonary vessels, and consequently no mottling of the lung surface. Moreover, the docimasia fails in its last test, for, on compression, perhaps only to the degree expressed by the fourth step of the docimasia, the lung no longer continues to float, showing that the injected air has been pressed out. Cases of imperfect respiration, however, in which the lungs have been filled only in part, cannot always be distinguished from those inflated artificially.

101e. Putrefaction.— That putrefaction may lead to the formation of gases which will float the thoracic viscera is possible. In the first step of the docimasia, the heart, filled with the gases of decomposition,

[9] Taylor, Med. Juris. p. 303, 6th Am. ed.

[10] Ann. d'Hyg., XVI., 364, and XVIII., 157.

[11] Casper, For. Med., N. Syd. Soc. Tran., Vol. III., p. 72.

might be the cause of the floating, but that would be thrown out by the second step. Putrefaction in the lungs themselves does produce gas, but the gas bubbles are on the surface of the lungs, and are not in the air vesicles, but in the interlobular tissue. These bubbles may be seen with a low magnification, and if each is pricked with a pin, and the gas allowed to escape, the lungs will no longer float. However, the putrefaction of the lungs does not take place till the decomposition of the other organs is very marked. This fact is attested by many writers, and especial stress is laid upon it by Casper.[12] In four cases examined by him where the child's body was already greatly decomposed, the lungs retained their firmness and sank in the water. In one case the heart and liver were both covered with putrefactive vesicles, and swam upon the surface of the water, while the lungs, which were firm and brown, sank to the bottom. Hofmann[13] cites the case of an infant where the liver, spleen, kidneys, stomach, intestines, and whole body floated, but the lungs did not. Should the buoyancy of the lung be due to putrefaction, then the condition of the rest of the body would give marked evidence of the cause.

Recently, Descoust and Bordas[14] have made a number of experiments on the putrefaction of the lungs, and have demonstrated so clearly that Brouardel has no doubt as to the accuracy of their work, that no gangrenous putrefaction takes place in the lungs unless the infant has already breathed; artificial inflation of the lungs not producing the same effect. Hence, even if the lungs do float from putrefactive changes, that very putrefaction is evidence of the breathing. These results have not yet been accepted in the courts, but Brouardel is satisfied that they are beyond question. Hofmann cites Ungar[15] on this point, who agrees with Bordas and Descoust for the majority of cases, but he finds exceptional cases where bacteria may be inspired before birth. He cites one case[16] with fresh-looking organs, where the lungs, stomach, and intestines floated. The mother died of an infection with a gas-producing bacillus.

Maschka[17] relates the very interesting case of a child found in a privy. The heart and lungs floated, apparently from decomposition, for after pricking the bullæ and compressing the lungs they sank;

[12] Casper, Gerichtl. Leich. Off. 1 and 2 Hunderte, Fälle 67, 68, 65, 66.

[13] Hofmann, Gericht. Med., p. 789.

[14] Brouardel, L'Infanticide, p. 61. De l'Influence de la Putrefaction sur la Docimasia Pulmonaire Hydrostatique, Annal. d'Hyg. Pub., 1865, XXXIII., p. 547.

[15] Ungar, Uber den Einfluss der Fäulniss, Viertljhrsch. f. gericht. Med. III. F. XXI.

[16] Hofmann, Gericht. Med., p. 790.

[17] Maschka, Viertljrsch. f. gerich. Med., 1865, IV. F., Bd. II., p. 87.

yet feces and sand pervaded the smaller bronchial tubules. The decision given by Maschka was that the child had been dropped into the privy while still alive, and had there attempted to breathe. The mother stated that the infant had been expelled from her while she was at stool.

102. Objections to docimasia pulmonum hydrostatica on the negative side; disease.— Another point to be considered is the negative value of the docimasia pulmonum. If the lungs do sink, does that prove that the infant did not breathe? Here we must consider the other causes which would lead to the sinking of the lungs; and of these there are the conditions of disease, such as pneumonia and congestion, atelectasis, and some such extraneous conditions, as boiling. It has been suggested that a very great congestion of the lungs would destroy their buoyancy after they had respired; but this has been disproved.[18] Again, pneumonia may so increase the density of the lung as to cause it to sink. It is exceedingly rare, if ever possible, however, that pneumonia occurs congenitally; and it would not involve the entire lungs; hence, portions might be found to be buoyant. Moreover, the diseased condition, whether congestion or pneumonia, could be identified upon either gross or microscopic examination.

102a. Atelectasis.— Atelectasis is the condition of the imperfect expansion of the lungs. Holt[19] says that children may live for several days using only one fourth of their lungs that part being usually the anterior border of the upper lobes. When the child lives for a shorter period still less of the lungs may be expanded. Taylor cites two cases from his own observations: one in which the child lived for six hours, and yet the lungs sank. In the other the child survived twenty-four hours, and after death the lungs were cut into thirty pieces, but not a single piece floated. Brouardel[20] cites several instances in which premature infants have lived from six to thirty-six hours, in whom the lungs sank when placed in the water, although the infants had been breathing most of the time. As an illustration of the condition of apparent death in which the infant may lie without making any sign of life he tells the story of a midwife who put an apparently dead child in her basket, and, after caring for the mother, took the child to the police station to report it as a still birth. She told her story to the officer, and then opened the basket to show the dead child; whereupon the youngster cried for the first time.

[18] Schmitt, Neue Versuche und Erfahrungen über die Ploucquestische und hydrostatische Lungenprobe, Wien, 1806.

[19] Holt, Diseases of Children, 1903, p. 72.

[20] Brouardel, p. 65.

Hence, if the child's lungs sink in water, and no disease can be found to explain the sinking, we can not infer that the child has not lived, nor even that it has not breathed, although its respiration must have been very slight.

102b. **Boiled and water-soaked lungs.**—Again, if the lungs have been boiled the air has been driven out, and the lungs sink without giving evidence in either direction as to the respiration of the child. But here the abnormal condition of the lungs would be very evident, and lead to no trouble. Hofmann has shown another point which is of importance in connection with cases where bodies are found in the water, and where a wound gives access of the water to the lungs. He cites the authority of Koliker[21] for the statement that lungs which float, if allowed to remain in the water, sink after three to eight days, from becoming water logged.

103. **Docimasia intestinalis hydrostatica.**— Besides the docimasia pulmonum and the evidences in the lungs of respiration, we not infrequently find in the stomach a certain amount of air which has entered with respiration, for, in a certain number of cases, the respiration is accompanied by the swallowing of air. If, then, we test the stomach as we did the lungs, placing it in the water, in a certain number of cases we shall find that it also floats. This Brouardel[22] speaks of as the docimasia intestinalis hydrostatica; and while it is of very subsidiary value as compared with the condition of the lungs, still, if both lungs and stomach float, the lung test can be considered as corroborated; if they both sink the evidence of still birth is greater than if the lungs alone were observed; and if the lungs sink but the stomach floats, it cannot be affirmed that the child has not breathed.

104. **Circulatory tests, in general.**— The circulatory system must also be considered before the question of live birth can be dismissed, for the child may have a fairly active circulation and distinct muscular movements and still not breathe well, or, what is more to the point in the medico-legal cases, the child's breathing may be cut off before it has begun in the perfectly healthy child, as in the cases of suffocation before the first cry. In these cases we must not consider the negative docimasia as evidence of still birth.

105. **Caput succedaneum.**— As proof of an active circulation during at least part of labor, the presence of a serous exudate under the scalp or on whatever part of the child presented, called the caput succedaneum, formerly used to be cited. But it has been proved by

[21] Koliker, Viertljhrsch. f. gericht. Med., XIX., 261.

[22] Brouardel, p. 67.

Blot[23] that even in the fetus that has been dead for some time, a similar caput succedaneum is formed. This exudation, formerly attributed to a constriction of the venous circulation, has been shown to be due rather to decreased pressure on that part, and the pressure would be just the same whether the child were dead or alive. Hence, the caput succedaneum is of no value as a sign of live birth.

106. Fetal channels.— The effects of birth and respiration upon the course of the blood through the body, and the closure of the fetal channels, are gradual, and can hardly be enumerated as signs that give evidence of live or still birth. They are considered in the section on the duration of the life of the infant.[24] Again, the color of the blood in the two sides of the heart after respiration is too indefinite and too liable to modification by other factors to be of any value as a test of life.

107. Blood coagulation.— The coagulation of blood after extravasation around fractures, wounds, and abrasions has received considerable attention and much warm discussion. The primary assumption was that if a wound bled and the blood coagulated around it, the wound had been inflicted during a period of life and active blood circulation. Casper, in his works on legal medicine, differed from this view, and held that blood shed after death could present a similar appearance. Tardieu[25] considered that Casper had confounded two distinct conditions, and tried to refute all of Casper's arguments. Tardieu was supported by Devergie, West, and Barduet de Limoges, they all agreeing that the blood clot is evidence of life at the time of the injury. Now Brouardel,[26] who has succeeded Tardieu at the University of Paris, upholds the view of Casper that such blood clots cannot be accepted as evidence of life.

108. Live birth before respiration.— On the other hand, the circulatory tests of life have been recognized by the courts, and live birth before the beginning of respiration conceded. In *Rex* v. *Brain*[27] the judge said that a child might be born and not breathe for some time after its birth.

IV. Duration of the child's life.

109. Evidence from the lungs, stomach, umbilical clots.— After the

[23] Quoted by Tarnier. L'Infanticide, 2e. 1880, p. 74. Blot, Tumeur Oédemateuse Séro-sanguinolente Develloppée sur le Crâne de Pleusieurs Fœtus Mort Nés. Mémoires de la société de biologie. 2e s. t. II., comptes rendus des séance, 1855, p. 63.

[24] See § 112, *infra*.

[25] Tardieu, Etude Méd. Lég. sur les Blessures, etc. 1879, p. 1; reference from Brouardel, L'Infanticide, p. 69.

[26] Brouardel, L'Infanticide, p. 69.

[27] *Rex* v. *Brain*, 6 C. & P. 349, Archibald; Crim. Plead. 367. See also *Rex* v. *Sellis* 7 C. & P. 850.

proof of live birth the question arises as to how long the child lived. The lungs containing respired air show that the infant lived at least long enough to take one breath, with the exclusion of the cases of the rare instances of breathing before birth. The examination of the stomach of the stillborn child shows that it is filled in some instances, probably always before respiration, with mucus, and in the first few minutes of life this mucus becomes mixed with air, forming a foamy liquid which disappears in a few hours. If this foamy mass, then, is found in the stomach, the life of the child may be considered as limited to a few hours. Similarly, the introduction of milk or food into the stomach will show that the child has lived at least an appreciable length of time. Coincident with the tying of the umbilical cord, or of the cessation of the placental circulation, there is the formation in the vessels of the cord of obliterating clots of blood, showing also a definite duration of life. On the other hand, if life has been shown, and the cord is still attached to the placenta, it would limit the life to a few hours, and at the same time tend to show the intention of the mother. For if the mother desires the child to live she sees to it that the cord is tied, even though the child may not die if the cord is untied or even uncut. Then, according to Tardieu, there occurs a beginning obliteration of the umbilical arteries, which would indicate life of about six hours.

110. **Condition of the umbilical cord.**—After the first day there is evidence in the umbilical cord of perhaps the greatest value, not merely as to the duration of the life of the child, but also as to life itself. At birth the cord is of a bluish pearly white color; after birth it loses its polish, and begins to become dry and flaccid during the latter part of the first twenty-four hours. The desiccation continues until the cord is hard and dry and falls off. The desiccation of the cord, formerly considered to be a sign of life, has been shown to occur just the same in the dead infant; depending upon the dryness of the cord, not upon life. Tardieu[28] describes the case of an infant that was suffocated promptly after birth, but the cord left long and attached to the umbilicus. One week later the infant was found, and by chance a portion of the cord had lain on the ground beneath the body of the infant. The part of the cord that had been exposed to the air was hard and dry, but the portion which had been protected by the body of the child was moist and putrifying.

The fall of the cord seems to be due to a mild inflammation that takes place around the umbilicus, which at the end of the first day

[28] Tardieu, L'Infanticide, p. 89.

appears as a slightly reddened area. This inflammation never becomes marked in the cases that receive proper care, but continues until the cord falls off. The cord separates usually on the fourth, fifth, or sixth day. The statistics as to the day all agree very accurately. The following are those given by the New York Lying-in Hospital for the six years preceding April 1st, 1896:[29]

The cord was detached on the 1st day in 3 cases; 2d day in 61 cases; 3d day in 655 cases; 4th day in 1,799 cases; 5th day in 2,203 cases; 6th day in 1,648 cases; 7th day in 829 cases; 8th day in 413 cases; 9th day in 139 cases; 10th day in 37 cases.

Then, after the fall of the cord, cicatrization of the navel takes place, and that is generally complete on the fifteenth day.[30] One other point must be considered in connection with the fall of the umbilical cord, and that is the fact that the cord may, by accident or otherwise, have been torn off at the umbilicus. Such a condition would be accompanied by a loss of substance around the attachment of the cord, and there would be a distinct wound, which would be easily distinguished from the normal scar after the fall of the cord.

111. Skin desquamation.— The skin of the newborn child begins to desquamate usually on the day after birth, or the next day, taking off the remainder of the vernix caseosa. This desquamation usually lasts from one to five days. Hence, if we note the desquamation as present, we may consider the infant to be two or more days old.

112. Obliteration of the fetal channels.— The obliteration of the fetal blood channels has received considerable notice is connection with the duration of life after birth, but they are exceedingly variable. Elsässer[31] showed the obliteration of these channels to be entirely unreliable even as evidence of live birth, for he found the ductus venosus closed in one stillborn child; and the foramen ovale and ductus arteriosus both closed in a child that lived but a quarter of an hour. Moreover, the continued patency of these channels is of still less legal value on this point, as the foramen ovale and ductus arteriosus are found open in certain cases in adult life. Brouardel[32] gives them very little weight, saying that they are, as a rule, all completely occluded at the end of two weeks, and Hofmann[33] says several weeks.

113. Centers of ossification.—The life of the infant is also deter-

[29] Med. Report of the Soc. of the Lying-in Hospital of New York City, 1897, p. 75.
[30] Brouardel, L'Infanticide, p. 75.
[31] Henke's Zeitschr. 1841–1852.
[32] Brouardel, p. 76.
[33] Hofmann, p. 815.

minable to a certain extent by the growth in size of the center of ossification of the lower epiphysis of the femur. The size at birth is from 2.5 to 5mm. If the child has an epiphyseal center more than 5mm. in diameter the child may safely be said to have lived more than ten days, if the birth was at term, and the duration of pregnancy not protracted. On the other hand, cases have been found[34] in which the infant has lived from eight to ten days after what was supposed to be birth at term, and yet no sign of an epiphyseal center was found. Hence, even this sign must be considered as secondary to the evidence offered by the umbilicus, its area of inflammation after the second day, the falling of the cord on the fourth, fifth, or sixth day, and the healing of the granulating area behind it up to the end of the second week.

V. Causes of death during labor.

114. Placental separation.— One more point must be considered before we take up the direct evidence as to infanticide, and that is the causes of death during or immediately after labor, to which the infant is exposed. In the early stages of labor, if the placenta is separated while there is yet no possibility of the fetus receiving air from the outside world, the fruitless attempts at respiration will lead to the death of the infant from asphyxia with the inspiration of the liquor amnii and of meconium and urine if they have been passed by the fetus, as they usually are. These substances may later be found in the lungs of the fetus on autopsy.

115. Prolapse of cord.— The umbilical cord may become prolapsed and compressed so as to shut off the circulation of the blood, and similarly cause asphyxia. Brouardel says[35] that 55 per cent of those dying during labor have a prolapse of the cord. These cases also show the inspired liquor amnii in the lungs, and usually the subpleural ecchymoses, and other signs of asphyxia.

116. Cord around neck.— The cord may be the cause of death also in another way. In one case out of about every four[36] of normal births the umbilical cord is wound around the neck. These coils of the cord may be so tightly constricted as to cut off the flow of blood through the cord, or possibly of the circulation to the head, by compression of the vessels in the neck of the child, thus causing asphyxia. These cases of coiling of the cord around the neck have been cited as an

[34] Brouardel, p. 76.
[35] Brouardel, p. 44.
[36] Med. Rep. Soc. Lying-in Hosp. C. N. Y., 1893, p. 21. 575 cases out of 2328; that is, one in 4.04.

explanation of the cases of apparent strangulation of the child. There are no marks that are always present in these cases, by which they can be identified. In a few instances marks on the neck evidently due to the cord have been described. Elsässer examined over three hundred cases in which the cord was around the neck, without finding any mark that could be attributed to the cord.[37] The marks are described as varying greatly in their character, sometimes mere furrows in the skin, without color, sometimes red or blue marks around the neck. Foster[38] reports a case in which the child was born dead after a very tedious labor; the cord had been twisted around the neck, leaving three parallel colored depressions. Brouardel[39] considers the cord about the neck as the cause of death in 4 per cent of the still births, and describes one case in which the cord left a mark on the neck of a child that survived, the mark being visible for four days after birth. The differentiation of criminal strangulation and death from the cord around the neck is very difficult. If the width of the mark corresponds to the diameter of the cord, goes completely around the neck, and is continuous with a mark of similar character leading towards the umbilicus, and if there is no evidence that the child has breathed, and therefore that the death took place during or very soon after labor, the chances are that the death was due to the cord.

117. Head compression.—In the cases where the labor is protracted, on account of the small size of the mother's pelvis, the rigidity of the parturient canal, or the large size of the child, there is a marked moulding of the child's head, which may be sufficient to cause the death of the child. The evidence of such a condition would be seen in the elongated head and the marked caput succedaneum, as well as in the disproportionate size of the child and mother.

118. Rupture of cord.—In exceptional cases the umbilical cord may be so short as to interfere with the birth of the child. This shortness may be due to the winding of the cord around the neck or body of the child, or to a cord that has primarily an extremely short length. Brouardel cites two cases of the kind;[40] one of Dr. Sclafer with a cord 10 millimeters long, the other reported by Dr. Stude, where there was no cord at all, but the placenta adherent to the umbilicus. In such cases the cord must be ruptured or some other accident occur to allow the child to be born. If the cord is ruptured,

[37] Henke's Zeirschr. 1835 and 1842, Erg. Heft, 31.
[38] Med. Gaz., Vol. VI., p. 485.
[39] Brouardel, p. 89.
[40] Brouardel, p. 51.

as is the most likely, there is the danger of death from hemorrhage from the torn end of the cord. The same danger is imminent in the cases of velamentous insertion of the cord into the placenta. Here the separated vessels of the cord are also liable to rupture and lead to the hemorrhage. The likelihood of death from such rupture will be considered in connection with the discussion of the untied cord after delivery.

119. Fracture of skull.— Fractures of the skull of the infant may occur during labor, either from excessive pelvic deformity, the application of the forceps in the hands of the obstetrician, or precipitate labor, the child being born while the woman is about doing her work, and the child falling and fracturing its skull by striking the ground. Possibly, also, the woman may receive an injury during pregnancy of such a character that the child's skull will be broken. These last cases have little bearing upon infanticide, for in the instances of intrauterine fracture of the skull, the infants have all been born dead soon after the injury, and have not gone to term.[41]

119a. From contracted pelvis.— Depressions and fractures of the skull do, in rare instances, occur in connection with pelvic deformity[42] or bony exostoses from the pelvis.[43] These fractures are most frequent at the parietal and frontal bones, and appear either as a radial splitting of the parietal bone from the center of ossification, or as a depression of a single area of the skull. These fractures must be distinguished from the congenital disease of the bone, which usually appears as rarefaction of the bone tissue in several places.[44]

119b. From forceps application.— Fracture of the skull by the application of the forceps, or rather, by their compression, would scarcely be advanced as an explanation of the fractures of the skull in a case of infanticide. But here, too, the fracture is a single depression, as distinguished from the multiple fractures of infanticide,[45] and in the forceps cases, too, the fracture usually involves the frontal and parietal bones.

119c. Precipitate labor.— It has been argued that fractures of the skull may be the result of a precipitate labor, in which the woman is delivered while standing at her work; that the child fell to the

[41] Froebel, Die Nabelschnur im ihrem pathol. Verhalt. wahrend der Geburt, Gaz. des Hôp., Nov. 1846; Gurlt, Lehre von den Knochenbruchen, Frankfort am Main, 1860, p. 211.

[42] Lizè, Lancet, Feb. 1860, p. 180.

[43] Tardieu, L'Infanticide, p. 143.

[44] Zur Kentniss der Naturlichen Spalten und Ossifications defecten am Schädel Neugebornener, Vrtljschr. f. d. prakt. Heilk. CXXIII., p. 53. Hofmann collects cases of mistaken congenital and traumatic fissures, etc.

[45] See § 133, *infra*.

ground and, in so doing, broke its skull. Landsberg[46] gives a good illustration of this accident in the following case: A woman who had already borne several children was taken in labor at the time that her house was on fire; as she ran from the house the child fell from her upon a heap of broken bricks and stones. Fourteen days afterwards there was found upon the left parietal bone of the child a swelling the size of a pigeon's egg, without any discoloration of the skin, and with slight fluctuation. The fragments of the bone and crepitation could be easily distinguished at this spot. The child got well. The fractures thus produced naturally occupy the top of the skull,[47] are usually linear, and not associated with any marked traumatism of the soft parts, and do not always lead to the death of the infant. So much we must admit. But when we come to examine into the frequency of these fractures, we find, first, that while it is possible for a woman who has borne several children to be taken so suddenly that she does not have time to lie down, it actually occurs but very rarely. Moreover, granting that the labor has come on suddenly, and the child has fallen to the ground, fracture of the

[46] Henke's Zeitschr., 1847, III., Heft.

[47] Hofmann tried sixty cases and got no fractures; Casper, in his Vierteljahrschrift, 1863, Heft 1, gives his experiments bearing on this point. Twenty-five experiments were made upon the bodies of newly-born children. From a height of 30 inches, ten infants were dropped upon an asphaltum and fifteen upon a stone pavement. There were no visible injuries to the surface produced, but in twenty-four cases fractures of the skull were found. The fractures were distributed as follows: one parietal, sixteen times; both parietals, six times; once the parietal and frontal of the same side; once the frontals of both sides; and once the occipital had sustained a fracture. Numerous fractures were not found. The peculiar form of injury is also worthy of notice. Almost always one, two, or three fissures extended from the parietal protuberance to the margin of the bone, and sometimes extending across the sagittal suture to the parietal of the opposite side; twice a small portion of bone was broken off. Twice, when the body was allowed to fall from the table, fracture of the parietal resulted. When the head was trodden upon by a heel, fractures were always produced, not only in the parietal touched, but in the opposite bone, which looked much as if done in life. Extensive injuries were produced by striking the head against a table or wall. Four bodies were placed two or three inches under ground which was then stamped level; in three of the cases fractures resulted. No result was obtained by compressing the head with the hands, or by falling suddenly upon the child placed upon a hard surface. Compressing the head into a narrow box was attended with no result in two cases, but in a third a slight cleft extended from the lamdoidal suture into the left parietal bone, while the coronal suture was somewhat separated. Extensive injuries were easily produced by blows with a mallet or hammer. In all the cases the fractures were like cracks in glass. In five only, out of sixty fractures, were serrations present. Detachment of dura mater, separation of sutures, extravasations of blood beneath the pericranium, and coagulations at the seat of fracture are not peculiar to the living. More or less coagulated extravasations were pretty constantly found, and the other appearances mentioned were not infrequent. In conclusion, we are warned that the fetal skull, like that of the adult, may be more resistant after death than it is during life. The cases are perhaps too few to establish laws, but coming as they do from so high an authority, are worthy of the most careful consideration.

skull as a consequence is by no means the inevitable result; in fact, Klein[48] collected one hundred and eighty-three cases of delivery in the erect position, in none of which the head of the child was fractured. Still, the instances of fracture in this way are authentic enough to leave no doubt as to the possibility, so that, while the general law is that such a fall does not produce a fracture of the cranium, still the exceptions must be admitted, and these must be differentiated from the criminal fractures.[49] In the differentiation from criminal fractures, if the fracture is sufficient to cause immediate death of the infant the absence of air from the lungs would tend to support the mother's plea that the fracture was due to precipitate labor; but the converse, that the presence of air in the lungs supports criminal fracture, cannot be argued, for it is well known that even after the destruction of the child's skull in utero by the operation of craniotomy, the infant, after birth, has made efforts to breathe.[50]

120. **Hemorrhage from rupture of the cord.**— Another cause of death immediately after labor, and intimately associated with this manner of fracturing the skull, is by hemorrhage from the rupture of the umbilical cord in precipitate labors. In these cases the woman may be standing, and the weight of the child fall upon the cord, though such instances are very rare. In the 183 cases collected by Klein, in none of them was the cord ruptured. Tissier,[51] however, reports one such case. And what is still more worthy of comment, Budin[52] reports two cases of rupture of the cord where the woman was lying down, and under the usual hospital care, when, with a single strong pain, the infant was shot from the woman, in one case driving the fetus 30 centimeters from the woman's vulva, and breaking the cord.

121. **Breech presentation.**— Another real, though not common, cause of death during labor, is in the delay of the birth of the after-coming head in the instances of breech presentation. In some cases where the extraction of the child is difficult even in the hands of the physician, there is so much delay as to endanger the life of the child, sometimes even to be accounted as the cause of death. If, then, a woman comes to labor by herself, with no one to help her, and the

[48] Quoted by Brouardel, L'Infanticide, p. 111, from Eléments de Méd. Lég., Hofmann, Traduise francaise, p. 576. Of the 183 cases twenty-one were primiparæ. The positions in which they were confined were as follows: Standing, one hundred fifty-five; squatting, twenty-two; and on the knees, six.

[49] Tardieu, L'Infanticide, p. 142.

[50] Brouardel, p. 113.

[51] Tissier, Ann. d'Hyg. Pub. et de Méd. Lég., 3e sér., 1899, XLI., p. 77.

[52] Budin, Ann. d'Hyg. Pub. et de Méd. Lég., 1887, XVII., p. 534.

child presents by the breech, it would not be at all surprising that the child were stillborn. In these cases the woman would probably call for help before the birth of the child was completed. Otherwise, the only evidence of the condition that would remain would be the caput succedaneum on the genitals instead of on the head of the infant.

VI. Death after labor.

122. Caused by malformations.— There are a certain number of cases of death soon after birth, from unavoidable causes, such as malformation of some of the essential organs of life,—the brain, heart, lungs, and alimentary canal,—by reason of which the persistence of life is impossible. These cases show the defects in their structure, and become of interest legally only when associated with attempts at infanticide. Brouardel[53] reports the case of an infant born two weeks before term in which the mother claimed to have been taken suddenly with labor pains which she interpreted as desire to evacuate the bowels, and the child, according to the statement of the mother, was born into the water-closet, and the placenta thrown down after it. The infant was discovered in time to be rescued, taken to the hospital, and cared for till it died on the fourth day, with symptoms of intestinal obstruction. The autopsy showed scratches on the body not sufficient to account for the death of the child; separation of the bones of the skull, which could have been accounted for by the striking on the seat of the closet at the time of birth. There was also a tight stenosis of the intestine, 11 centimeters long, through which a fine probe could scarcely be passed, so that the child could not have lived under any circumstances. At the trial the woman, who had been charged with infanticide, was let go with a *non lieu*. It was not proved that the action of the woman had been sufficient to cause the death of the child.

123. Caused by prematurity.— Similarly, in the cases of premature infants of the last three months, death not rarely occurs. In view of the statistics of the Charitè Hôpital, Paris, where there has been a mortality of less than 50 per cent in the infants born after six and a half calendar months of intrauterine life, because of the use of the incubator and artificial feeding,[54] these mothers might be charged with not giving their infants proper care; but it is needless to say that such opportunities are not accessible to all mothers, and they are but little known to the laity.

124. Death from avoidable causes in general.— We may turn now

[53] Brouardel, pp. 22 and 175.

[54] See § 65, *ante*.

to the cases of death soon after birth, from avoidable causes; that is, to the cases of infanticide. The class of people among whom such crimes occur is of interest in comparison with the class in which criminal abortion is found. Brouardel gives the following tables, as taken from the records of the French courts:[55]

Profession.	Infanticide.	Abortion.
Agriculture,	50%	24%
Domestic service,	20%	10%
Industry,	18%	29%
No profession,	18%	13%
Commerce,	9%	6%
Liberal professions,	1%	18%

125. Suffocation.— Brouardel also gives a very instructive table of the frequency with which death is due to the various means employed to end the life of the child. He gives the figures of Tardieu and Vibert as well as his own, and explains the marked difference between the figures of Tardieu and the others as due to the fact that Tardieu considers subpleural ecchymoses as absolutely characteristic of death by suffocation, while Brouardel and Vibert do not consider that one sign as sufficient to prove the diagnosis. Tardieu considers that of the 804 cases that he examined, 69 per cent were infanticides, of which 34 per cent were due to suffocation. Brouardel, like Tardieu, considers suffocation the most common cause of death in infanticide, but he has, in his table, separated suffocation and strangulation, although they usually occur together.

The following is Brouardel's table:[56]

Cause of Death.	Tardieu.	Brouardel.	Vibert.
Suffocation,	34	5	3
Immersion in water-closet.	9	9	6
Fracture of skull,	9	9	8
Strangulation,	7	8	8
Submersion,	4	4	0
Lack of care,	1.7	0	0
Wounds,	1	4	1.4
Combustion,	1	1	0
Umbilical hemorrhage,	1	2	0
Cold,	0.5	1	0
Poisoning,	0.2	0.5	0
	69%	43%	26%

126. Manner of producing suffocation.— Suffocation of the infant

[55] Brouardel, p. 16. [56] Brouardel, p. 77.

may be produced in various ways similar to those in the adult, and also in several ways characteristic of the newborn infant, who can offer no resistance. The face of the infant may be covered with a cloth, pillow, or mattress, none of which will leave any characteristic mark. Or the infant may be buried alive; when, if the dirt has free access to the mouth and nose, it may be inspired, and found in the mouth, pharynx and larynx. The infant may be suffocated by being put in a bureau drawer or in a box, where the asphyxia will follow gradually, and where the signs will also not be characteristic. Similarly, the child's thorax and abdomen may be compressed, either with the hands, or by leaving the infant as it is born, between the thighs of the mother, and compressing it there with her thighs. Here, too, the evidence as to the manner in which the suffocation was produced is rarely distinctive. Perhaps the most usual way for the mother to suffocate the child is to cover the nose and mouth with her hand in her attempt to keep it from crying and so betraying its birth. If the woman succeeds in stopping the cries, she also kills the child. In these cases the signs of the method used are often distinct. There are the marks of the finger nails of the mother on the face of the child, around the nose and cheeks. These lacerations of the skin are especially likely to occur, as the skin of the child is so slippery from the vernix caseosa, and it is necessary to hold the child fast for five or six minutes to end its attempts at respiration. These superficial lacerations are rarely associated with ecchymosis, and are to be distinguished from accidental excoriations occurring after death by their characteristic size and peculiar angular form as well as by their location around the mouth, nose, and neck. Sometimes the head is held in one hand by the occiput, and the other hand used to cover the nose and mouth. Then there would also be nail marks behind the ears as well as on the face. Owing to the difficulty of holding the child's head, it is not infrequent to have the suffocation supplemented by strangulation, the mother's hand readily grasping the neck of the infant. Here the nail marks are found also on the neck. Philippon[57] mentions one case in which the identity of the mother was suggested by the fact that the marks of the fingers were on the right side of the neck, and that of the thumb on the left side, thus pointing rather to a left-handed person than to the usual right-handed grasp. It

[57] Philippon, De Infanticide par Strangulation, Thèse, Lyon, 1895, XCII., p. 24.

could not be said positively that the deed had not been committed by a right-handed person grasping the neck from behind.

To these arguments from the nail marks the mother not infrequently makes the response that the marks are the result of the attempt to help herself in the delivery after the birth of the head, by grasping the head with her hands, and pulling on it. Such a defense may be admitted if the nail marks are transverse on the neck, but not if they lie in the long axis of the neck, as is usually the condition. However, such a maneuver is associated with considerable difficulty, for the force that a woman would be able to apply after putting her arms around the abdomen, enlarged by the pregnancy, would not be of great service in extracting a child that was delayed after the birth of the head.

126a. Pharyngeal tampon.— One other method of suffocation deserves consideration, and that is the packing of some foreign substance into the pharynx, so as to cut off the supply of air. Such a tampon in the throat may leave no trace; or, if less carefully applied, may leave excoriations on the mucous membrane.[58] In not a few instances the tampons so applied have been left in place, and found on autopsy. Philippon [59] considers that these bodies, if introduced before death, remain dry or stained with mucus at the lower end and the mucus membrane of the pharynx there is anemic, while the mouth end of the tampon is moist and stained with blood, and the mucous membrane at the upper border of the tampon is distinctly congested. Cases of this kind are not rare, and one is of special interest from the uncertainty as to whether or not the child was living when the outrage was committed.[60] A child was found in which the fauces, the upper part of the œsophagus, the larynx, and the trachea were tightly packed with sand. At the same time the child's lungs gave no sign of respiration, and sank to the bottom of the water when subjected to the hydrostatic test. While it is difficult to imagine for what purpose, if the child was already dead, the substance wedged so tightly into the entrance to the respiratory passages and throat should have been forced there, it is no less strange that such an act of violence should have been perpetrated upon a living child without its lungs showing at least signs of imperfect respiration. Unfortunately the case remains without solution.

126b. Burial alive.— Burial alive may occur, but more often the

[58] Brouardel, p. 85.

[59] Philippon, De Infanticide par Strangulation, Thèse, Lyon, 1895, XCII., p. 33.

[60] Casper's Viertljahrschr., 1852, H. 2.

body of the child is buried after death, or in a condition of suspended animation at the time of birth. The signs of live burial would be those of suffocation in general, and in addition the presence of the powdered earth in the pharynx and larynx. One case of burial alive in a pot of ashes, confirmed by the statement of the mother, is given in the Annales d'Hygiene,[61] in which the ashes were found in the nostrils, mouth, fauces, and pharynx, but none in the windpipe. Another case is reported in the Lancet,[62] where the child, with the placenta attached, was buried in the ground, and covered with an inch and a half of earth. At least half an hour had elapsed before it was found, and yet, when it was taken up, respiration was still going on. Brouardel [63] considers that a child may live several hours (four or five) after burial. Hofmann [64] cites two cases from Bohn, of infants buried just after birth, that were dug up alive seven hours later. Another from Bardinet, of an infant that was alive after having been buried under 25 cms. of earth for eight hours; and still another from Mascha, where the infant was dug up alive after having been under a foot of earth for five hours.

Here, also, may be mentioned the cases of suffocation by exposing the child to noxious vapors, as those of burning charcoal, or sulphur, the exhalations of privies, *et cetera,* of which no trace will be found except the odor of the deleterious gases.

127. General evidence of suffocation.— The evidence of suffocation, no matter how it is performed, has the same general character as in the adult: the cyanosis of the skin, protrusion of the tongue, fluidity of the blood, congestion of the brain, and ecchymoses under the skin and conjunctiva,—all are suggestive of death by asphyxia, possibly by suffocation. The condition of the lungs, however, is more significant. The color of the lungs, if the child has not breathed, will remain like that of the fetus. If the child has breathed the color will not be the rosy hue, but a dark bluish red. The bronchi will contain blood-stained, frothy mucus, which must be distinguished from the slight exudation of colored serum, due to putrefaction, and the thick, purulent mucus of a capillary bronchitis that may have carried off the child without a sign during life. In the case of a child that has died of bronchitis, compression of the lung after it has been cut across will express from the bronchi little candles of muco-pus, 1 to 2 millimeters long, instead of the blood-stained mucus of a child that has been suffocated.

[61] Ann. d'Hyg. XLVII., p. 460, 1852.
[62] Amer. ed., 1853, p. 513.
[63] Brouardel, p. 85.
[64] Hofmann, Gericht Med., p. 800.

128. Taches de Tardieu.— The signs that Tardieu considers as characteristic of suffocation, called "taches de Tardieu," and that make the difference between his statistics and those of Brouardel and others, are the subpleural and subpericardial ecchymoses, and the similar spots under the pericranium, which are not to be confounded with the ecchymoses of the hemorrhagic diseases,—purpura and severe eruptive fevers. The ecchymoses of disease are irregular, large, diffuse areas of fluid blood, generally violet-colored, and the conditions under which they have been formed have their peculiar symptoms. The subpleural ecchymoses of Tardieu, found in these cases of suffocation, he describes as follows:[65] "One sees on the surface of the lungs small, punctate spots, very regularly rounded, of a very dark red, almost black color, of which the size varies in the new born from that of the head of a pin to that of a hemp seed. The spots are scattered under the pleura in variable numbers, sometimes reduced to five or six, sometimes thirty or forty; in certain cases so numerous that the lungs have the appearance of granite. Sometimes they are united and agglomerated so as to give the appearance of marbling. But in all cases they are exactly circumscribed and distinct against the general background of the lungs. Their location is not less irregular than their number; however, they are found most often at the root of the lung, at its base, and at the edge of the inferior border. These punctate spots are formed by little bloody effusions, little ecchymotic droplets under the pleura, arising from the rupture of the superficial vessels of the lungs. . . . . I have found these subpleural ecchymoses distinct on the lungs of a newborn infant whose body had lain for ten months in a privy. . . . Just like those found under the pleura, one finds ecchymotic spots almost constantly under the pericardium, principally at the origin of the great vessels."

In opposition to the experience of Tardieu, Brouardel[66] has found subpleural and subpericardial ecchymoses in cases of difficult labor, in cerebral disturbances, convulsions, and in cases of compression of the head. Moreover, he says that they may be absent in cases in which the woman declares that she has suffocated the infant. Therefore he considers them characteristic of suffocation only when they are corroborated by the external evidence. He cites the case of a fetus examined by Casper, found unborn at the eighth month in a woman who was hanged, in which these subpleural ecchymoses were

[65] Tardieu, p. 104. [66] Brouardel, p. 78.

present. Philippon,[67] in his thesis on "Infanticide by Strangulation," quotes Legroux as saying that, while making certain reservations, it is safe to say that in young individuals very numerous subpleural ecchymoses indicate suffocation; somewhat less numerous ones, strangulation; and still less numerous ecchymoses indicate hanging.

The evidence, then, of death from suffocation, must rest upon the external signs in addition to these subpleural ecchymoses as the conservative proof of the crime. Following Brouardel's evidence may lead to the nonconviction of a certain number of infanticides, according to the evidence of Tardieu; but there will be no doubt as to the cases convicted.

129. Strangulation.—Death by strangulation not infrequently occurs with suffocation or with fracture of the cranium. If the strangulation is done with the hand, there are the marks of the finger nails on the neck, as described in the consideration of the external signs of suffocation. If the strangulation is done by a string, cord, apron string, stocking, or some other band (most frequently taken from the dress of the mother), there may be marks of the constricting band on the neck, as in the adult;[68] but, as the skin of the infant is very delicate, the marks of excoriation would be more evident, though the force required to strangle the infant is only slight. Not infrequently the cord used had been left in place on the neck of the child, and is found at autopsy. The mark is more distinct in proportion to the smallness of the cord and the roughness of its surface. The mark of the cord is the characteristic brown discoloration, not associated with any diffuse ecchymosis. It must be distinguished from the line left by the furrow in the skin, which is found if the child lies with the neck sharply bent. The line left by this skin furrow is more marked in fat children, occurs usually only on the front of the neck, and is a white streak, bordered by two violet ones. Such a mark disappears in a few hours if the cadaver is left lying flat and straight on the table.

Strangulation by the umbilical cord has also been recorded; not the accidental occurrence when the cord is around the neck of the child at birth, but where it has evidently been applied after birth. The differentiation between the two conditions is difficult, but Brouardel considers that if air has entered the lungs or stomach the child must

[67] Thèse, Lyon, 1895, p. 30.

[68] See §§ 348 and 358, on violent deaths.

first have had an opportunity to breathe, and therefore have been born alive; while if no air can be shown in the lungs, the case should be considered as one of the not infrequent deaths during labor.

130. General signs of strangulation.— The general signs of strangulation are similar to those of suffocation. There are the subpleural and subpericardial ecchymoses, and the subperiosteal ecchymoses on the cranium,—the taches de Tardieu. There are often apoplectic nodes in the lungs, and more often than in suffocation, small areas of pulmonary emphysema. Then the bronchi contain the same blood-stained frothy mucus, and more often than in suffocation there are submucous ecchymoses in the trachea and bronchi. Bloody, frothy mucus may be swallowed during the death struggle, and be found in the stomach. Unlike the adult, fracture of the cartilages of the larynx is a very rare or undescribed occurrence, because here the cartilages are so soft and pliable.[69] Occasionally there are intramuscular ecchymoses in the neck and upper parts of the thorax, especially in the pectorals, sternomastoid and sternohyoid. Philippon[70] considers rupture of the internal coat of the carotid arteries in the neck as characteristic of strangulation by a cord; and he cites in this connection cases from Vibert and Lacassagne. The condition of the heart is not characteristic.

131. Submersion in water.— Death by submersion of the infant in water is less frequent than the attempt to dispose of the dead body of the child by throwing it into the water. The evidence that the infant was drowned is like that of the adult,[70a]—the water found in the lungs and stomach, the general fluidity of the blood, *et cetera*. If the water contains the dejections of the mother or child, they may also be found in the lungs. Brouardel[71] reports some very interesting experiments made on dogs, in which it was found that if a pregnant bitch was made to whelp under water, the pups would live sometimes as long as three quarters of an hour, while the mother would die in four or five minutes. He estimates that the human infant may live twenty to thirty minutes, and cites the instance of a woman who was delivered in a tub of water, where the child lived about that length of time.

132. Submersion in privy.— Submersion of the infant in the fluids of the water-closet may also be considered in this connection. Here again the differentiation must be made between the cases where the infant is thrown into the sewer to dispose of the body after death, and

[69] Philippon, p. 25.
[70] Philippon, p. 32.
[70a] See §§ 368 *et seq., post.*
[71] Brouardel, p. 91.

the cases where the infant is put into the closet living, either with the intent of killing the child, or by reason of being accidentally born there, the woman mistaking her labor pains for those of need to evacuate the bowels. The question as to whether the infant was alive or dead at the time that it was introduced into the closet depends, as in the case of drowning, on the substances respired. If the child was put living into the closet the fecal matter would be found in the pharynx and stomach; in the larynx, small bronchioles and air vesicles; and possibly in the middle ear. The identification of the fecal matter in the lungs may be demonstrated by expressing from the cut section of the lung the little candles of fecal matter, like those of muco-pus, expressed in the case of bronchitis. The composition of the candle would be easily identified under the microscope.

The question as to whether the child was accidentally born into the water-closet or was intentionally put there may not be so easy to determine. In the first place the possibility of the occurrence must be considered. The confusion of the two sensations is undoubtedly possible, but it is not so easy to conceive of the birth of the child with the woman in the sitting posture. Tardieu [72] considers it scarcely possible for the woman to remain seated during the entire delivery. Either she must be squatting, or she would have to straighten out in order to keep the infant from striking the border of the hole. If she straightened out the infant would be born on the floor, and not into the closet trap, while if the woman was squatting the child might be born into the closet. Hence, before admitting the possibility of the accident, the exact position of the woman and the arrangements of the closet should be taken into consideration. Again, for such an accident to occur the labor must be considered to progress considerably more rapidly than is ordinarily the case, and at a rate that is very exceptional in the case of a primipara, in whom the infanticides are not infrequent. Moreover, for the infant to fall beyond recovery, either the placenta must be born immediately after the child, a very infrequent occurrence, or the cord must be ruptured, which is more likely. In the latter case the end of the cord gives evidence that at least it was not cut, by its irregular end, and the retraction of the blood vessels, as distinguished from the even end and comparatively prominent vessels of the cut cord.

133. Fracture of skull.— Infanticide by fracture of the skull is the next most frequent method to that of suffocation. It is to be distin-

[72] Tardieu, p. 166.

guished from the fractures of the cranium due to deformity of the pelvis, pressure of the forceps, and precipitate labor.[73] In the intentional fractures the woman is not, as a rule, satisfied with a single blow on the head, but repeats the blows till the head becomes a mere bag of fragments of bones. A single blow of a sabot, according to Brouardel,[74] produces ten or twelve pieces; while the accidental fractures, as a rule, produce a single fracture or depression. Then these infanticide fractures are, as a rule, associated with more or less excoriation of the skin and scalp, and in the vicinity of the fractures there is an exudation of blood which may or may not be clotted. If the fractures are produced by projecting the head against the wall, the fracture may involve any part of the skull, and as a rule several bones at a time are involved on the same side of the head. If the fracture is due to a blow, there will be not only a fracture of the bones at the point where the blow was given, but also on the other side of the skull, at the diametrically opposed point. As to whether the fractures occurred before or after death, Tardieu [75] held that the presence of blood clot at the site of fracture was evidence that the death occurred subsequent to the fracture. Brouardel, on the other hand, does not consider this proof of the fracture during life, for he says [76] that he has found the same in fractures occurring after death. That the floating of the lungs should not, in such cases, be taken as the only evidence on which to base the life of the child, is well illustrated by a case cited, described by Bellot,[77] of a double infanticide, where the woman was delivered of twins, and immediately after their birth, as evidenced by the autopsy, and admitted by the woman, crushed the heads of both children with a wooden shoe. The one had had time to breathe, but the other failed to give a positive docimasia pulmonum; yet the cranial lesions of the two were the same, including the blood clots at the site of the fractures.

134. Wounds and mutilation.— Wounds and mutilation of the body are also at times the cause of death of the infant. The wounds are usually multiple, and made by the mother with any instrument at hand,—knives, scissors, pins, *et cetera*. In one case [78] over forty wounds were counted in the pericardium and abdomen of the infant, and others existed in other parts of the body. Large needles, by entering big vessels, may cause death by hemorrhage without much ex-

[73] See § 119a, *supra*.
[74] Brouardel, L'Infanticide, p. 108.
[75] Tardieu, p. 73.
[76] Brouardel, p. 105.
[77] Bellot, Rapport sur un Infanticide Connue sur des Jumeaux, Ann. d'Hyg. et de Méd Lég. 1ère S., 1832, VIII., p. 199.
[78] Brouardel, p. 116.

ternal evidence, as may pins introduced into the fontanelles or between the vertebræ, either from the skin or from the pharynx.[79] The still more inhuman dismemberment of the body, with mutilation, at times is found. Infanticide by dislocation of the neck is also easily identified at the autopsy. The evidence of these wounds is subject to the same general considerations as the wounds in the adult.

135. Combustion.— Destruction of the body by combustion is far more likely than an attempt to burn up a living child. Usually burns of the skin occurring during life may be differentiated by the fact that the blebs contain an albuminous liquid, while they contain serum if the burns occur after death. Then in the living there is, as a rule, an inflammatory areola around the burn. In burning, the soft parts of the body shrivel up to such an extent that an infant at three months after birth looks likes an infant at term. The age here is to be determined by the centers of ossification of the bones. The possibility of burning up an infant, and completely destroying the traces of its body, exists. Brouardel says [80] the time required for the total combustion of an infant weighing three kilos is about two hours in a good hot fire, and that the odor so produced is insignificant and might easily pass unobserved. The ashes are not characteristic. In this connection Brouardel also mentions the destruction of the body in sulphuric acid, as is done with some of the material used in medical schools. He says that it takes about one hour for the destruction of a fetus in its own weight of sulphuric acid, and that a fetus of the fourth month—about three hundred grams—entirely disappears in twenty minutes. But if the acid is used for infanticide, it must then be gotten rid of; and that, to an inexperienced person, is no easy matter.

136. Poisoning.— Infanticide by poisoning is exceedingly rare. Brouardel[81] notes only four cases; one each due to sulphid of antimony, copperas, hydrochloric acid, and nitric acid. Accidental poisoning at a later date is more common, when other drugs are mistaken for cathartics, or overdoses of opiate sleeping potions are given. The evidence in these cases is the same as that of poisoning in general. In the Edinburgh Monthly Journal[82] there is reported the case of a woman who destroyed her child, which was only one day old, by arsenic. She was tried and acquitted upon the plea of insanity, although the evidence certainly did not warrant such a verdict.

[79] For various instances of infanticide by means almost scientific in their delicacy, see Brouardel, L'Infanticide, p. 115.

[80] Brouardel, p. 126.

[81] Brouardel, p. 129.

[82] Edin. Month. Journ., Sept. 1852.

137. Lack of care; caul.— Death may also result from lack of proper care. The omission of this care may be either thoughtless or intentional. As an example of death from ignorance in the mother may be quoted a case cited by Brouardel [83] of a woman who was delivered of her first child in the company of two girls who had never before been present at a birth. The child was born in a caul; and as none of the three recognized the condition, the child perished, when the simple removal of the membranes from its face would have saved its life.

137a. Cord ligature.— Again, in the case of primipara, not tying the umbilical cord, through ignorance, may lead to the death of the infant, though if the cord is not tied the child does not always die. Indeed, Valpeau calls the ligature of the cord a needless luxury. On the other hand, if the cord is tied, but inadequately, the child may also die from hemorrhage.

137b. Exposure.— Exposure of the child to cold is too slow a method of infanticide for ordinary use, though if the exposure is carried only to the point where the child catches a bronchitis, and the bronchitis leads to the child's death, the lack of proper care is the indirect cause of death, but leaves no convicting evidence behind. The time that a child can live when abandoned is not definitely settled. One case is related [84] of a child that was thrown out of a window, nine feet from the ground, in the middle of an April night. It fell to a pavement that was covered with straw and dung, and remained there, exposed and naked, for three quarters of an hour. It was then found and cared for, and lived twenty-four hours. It had received no injury from the fall. Another instructive case is the following:

A peasant woman delivered herself of a mature child, in the vicinity of a wood, on the 18th of August, 1842, and, fearing discovery, she concealed it in the hollow of a tree, thrusting it, head forwards, into the portion of the cavity which led towards the root, so as to exert considerable compression on the body, doubling it up, as it were. She then laid two stones of three or four pounds' weight upon its buttocks, and concealed the hole in the tree with a large stone. By a lucky accident, a passer-by, on the 21st, heard its moaning, and withdrew it from its prison, covered all over with fir spiculæ and ants. There were numerous contusions and lacerations upon different parts of the body. Its respiration, at first very rapid, soon became more tranquil, and, although much emaciated, it cried with some vigor,

[83] Brouardel, p. 131. [84] Henke's Zeitschr. Erg. Heft. 31.

and very readily partook of food. Its temperature was normal. Any change of position called forth screams, due evidently to the pain of the various excoriations of the surface. It continued until the 25th to take nourishment, but the sores on the surface put on an ill character, and it died on the 29th. It seems almost incredible that life should have been prolonged during the exposure of this naked infant, without food, for three days and nights, the temperature of the air varying from 50° to 80° Fahr. Probably its close quarters within the tree protected it in some measure from cold.

137c. Inanition.— If a child is deprived of all nutrition, starting from three kilos, it loses about one hundred grams a day by inanition.[85] Usually at the end of about one week, or when its weight has been reduced to 2,100 grams, it dies. The signs of inanition are the tense skin of the head, the over riding bones of the skull, the retracted neck, the eyes sunk in the sockets, the prominent ribs, and the empty intestine, with walls as thin as a cobweb.[85a] Usually the child is given scant or inappropriate nourishment, and lives a few weeks, leaving no evidence of crime.

VII. Time since death of child.

138. Evidence from putrefaction.—It is sometimes important to know the length of time that has elapsed since the death of the child. Estimates of the interval, based on the signs of putrefaction of the body of the child, are very unsatisfactory, for so much depends upon the conditions under which the child has been exposed. In one case [86] examined by Brouardel, where the body had been frozen, it appeared as fresh as if twenty-four or thirty-six hours old, but the other evidence proved that the body had been lying in the street gutter for six weeks during the winter. One point of difference between the putrefaction in the infant and in the adult is of aid in determining the time that putrefaction has been going on. For putrefaction being a microbic degeneration, as the infant is born free from all microbes the disintegration must begin in the skin unless the child has been given something to eat or drink, which would carry microbes into the intestine. So that, unlike the adult, putrefaction begins in the skin, and the skin is much more resistant to the action of the germs than the mucous membranes. Hence, it is at the mucus-lined orifices of the body—the mouth, nostrils, ears, vagina, and perhaps rectum—that

[85] Brouardel, p. 134.
[85a] See §§ 330 *et seq., post.*
[86] Brouardel, p. 136.

the first signs of putrefaction are found. While, on the other hand, in the adult putrefaction begins in the microbe-laden intestines.[86a]

139. Evidence from mummification.— Some extremely interesting studies have recently been made in determining the age of the mummified bodies, not merely of infants, but also of adults, by the determination of the age, condition, and nests of the insects that have been attracted to the cadaver in the course of its desiccation. Mégnin [87] has done some wonderfully accurate work in this line. Brouardel [88] cites several instances in which he calculated the date of death of the infant within two weeks, after an interval of one and a half years.

140. Date of delivery from evidence of mother.— The date of delivery, as determined by the evidence derived from the mother, is fairly accurate for the first few weeks, but a multipara examined fifty days after labor could not be distinguished from one three, or even five, months after labor. The signs of the pregnancy that has just passed are given in the chapter on the diagnosis of previous pregnancy.[89]

VIII. Responsibility of mother for care of infant.

141. Ignorance of pregnancy.— The responsibility of the mother is often, far too often, brought into question, to save the mother from the charge of infanticide. It is pleaded that the mother was unconscious of her condition of pregnancy, or of the delivery; that after the birth of the child she was too exhausted to give the child proper care, or that she committed the crime in a moment of puerperal insanity.

That the woman may be unconscious of her pregnancy for the first three or four months is indeed probable; but later the possibility is very slight in a normal woman. The French and the Prussian laws allow the excuse of ignorance until the fetus is 210 days old, but after that the plea is no longer admissible. Of course, exceptions are made for idiots, imbeciles, and for exceptional cases of women with their first child, for women who have had irregular menstruation, and for pathological cases. A few such cases where the woman has gone to term ignorant of her condition are recorded, but such cases are usually in women about the time of the menopause, who ascribe the symptoms to the change of life or to some pathological condition. Tarnier describes the case of a woman forty-two years of age, who was unconscious of her condition. Her doctor too, had considered the symp-

[86a] See § 410, *post*.

[87] Mégnin, La Faune des Cadâvres.

[88] Brouardel, p. 145. See also § 432, *post*.

[89] See § 27, *ante*.

toms due to the menopause, and it was not till labor had set in and a second doctor was called in consultation that the condition was recognized as pregnancy. And Vibert describes a case of a girl who had never been pregnant before, who was delivered alone, into a water-closet, and said that she did not know that she was pregnant, and felt no labor pains until the child was born. She had been told that she had an ovarian cyst.

The question as to the ignorance of the pregnancy in any given case of infanticide may often be confuted by showing that the mother has been at least conscious enough of her condition to attempt to hide it by compressing her abdomen, modifying her dress, and maintaining marked secrecy about the changes which have been going on up to the time of the clandestine birth.

142. Unconscious delivery.— The possibility of unconscious delivery is recognized beyond doubt by every one, if the woman is under the influence of a narcotic or of a disease affecting the consciousness. Under normal conditions, also, it is recognized as possible in rare cases. Dubois [90] reports one case in which the labor was not recognized till the head of the child was on the perineum. Montgomery [91] quotes two cases where the woman was delivered while asleep in bed, and the infant was discovered in one case by another child who was sleeping in the bed with the mother; and in the other case the infant was discovered by the woman's husband before it was known to the mother. He also describes a case that occurred in his own practice of a woman who was delivered of twins at six months while she was sitting at the dinner table, and the woman claimed to have known nothing of what was going on till she heard the fetus strike the floor. This case, however, was, to a certain degree, a pathological one; for on later examination there was found to be complete anesthesia of the woman's genitals. Brunon [92] describes the case of a woman twenty-two years old, a primapara, who took to bed and was delivered of an infant, not comprehending what was going on till she felt and saw the head of the child between her thighs. She had, however, been having labor pains, which she had interpreted as need to defecate, for over an hour before.[93]

143. Physical inability.— The question as to whether the woman was physically able to give the infant due care immediately after labor

[90] Dubois, Revue Clin. Hebdom. Gaz. des Hôp., 1854, 27–105.

[91] Montgomery, Signs and Symptoms of Pregnancy, p. 490.

[92] Brunon, quoted in Ann. d. Soc. de Méd. Lég. de France, 1890, XI., p. 370.

[93] For many other instances, see Gould and Pyle's Anomalies and Curiosities of Medicine, p. 114.

is a very delicate one. The exhaustion after labor is extremely variable in degree. The woman may have been exhausted from her exertions, or she may have lost enough blood to have fainted, and then not merely have been unable to give the child proper care, but in fainting she may even have fallen on the child, and so caused its death.[94] While we must recognize the possibility of the mother being unable to care for the child, still it should be borne in mind that the effect of the loss of blood is not instantaneous. Brouardel[95] describes two cases of fatal post-partum hemorrhage in which, before the effects of the hemorrhage overpowered the mother, she had had time to kill the infant. Usually, however, it can be demonstrated that no preparations had been made to give the infant due and sufficient care, so that the question does not turn upon the hypothetical considerations as to whether the woman was able to give the infant due care.

144. Mental irresponsibility.— The mental responsibility of the mother at the time of the infanticide must be determined by an alienist in each case. Mania for infanticide at the moment of delivery, which lasts but for the few moments sufficient to kill the child, is certainly not the rule. Puerperal mania usually is several weeks or months in its development and course. And yet the courts have several times recognized a fleeting mania, and acquitted the woman. One case,[96] in which a woman poisoned her child when it was one day old, came under the attention of Mr. Justice Cresswell, who, at the close of his charge to the jury, read the whole evidence, and remarked that he was bound to tell them that there was undoubtedly no direct proof that the prisoner was otherwise than in her perfect senses, as no person saw her laboring under delusion or insanity; and yet she was acquitted upon the plea of puerperal insanity. Brouardel cites several cases where infanticidal mania has been recognized by the courts, but he denies the existence of any such fleeting mania, attributing the crime to the mental condition of the woman. He says:[97] "Il faut se placer dans le condition où se trouvait cette jeune fille. Elle a fait une première faute, pour laquelle le justice n'intervient

[94] Hofmann, p. 854, cites Die Ohnmacht bei der Geburt vom gerichtsärztlichen Standpunct. Berlin, 1887, by M. Freyer. There are reports of three incontestable cases of unconsciousness just after delivery, reported from Mende, Schmitt, and Wildberg.

[95] Brouardel, p. 155.

[96] Edin. Month. Journ., Sept., 1852.

[97] Brouardel, p. 164: "One must put one's self in the condition in which that young woman finds herself. She has made a first mistake of which justice takes no account; she made a second, hiding her pregnancy, which justice takes account of only in Germany; she has made a third which is the almost inevitable consequence of the other two; she wishes to save her reputation; may the judges have pity. It is not I who would raise any objection; but be it far from me, a physician, to say that there is a form of insanity when such does not exist."

pas; elle en fait une seconde, elle a cachè sa grossesse, le justice n'intervient qu'en Allemagne; elle en a fait une troisième qu'était le consequence presque fatale des deux autres; elle voulait sauver son honneur, que les jurès lui soient pitoyables. Ce n'est pas moi qui souleverai une objection. Mais ce que loin ne me fera pas dire, à moi, medicin, c'est qu'il existe une forme particulière de fôlie, alors que celle ci n'existe pas. . . ."

IX. General comments.

145. In general.— A few general comments at the end of this chapter seem desirable to help define the position of the medical jurist in connection with these crimes. It is a fundamental principle laid down by Henke that death by violence is by no means to be inferred from the fact that the child was born alive. Even where marks of death by violence exist, it does not follow that the child was murdered. In the former case it may have perished in consequence of some disease incompatible with its life, or have been suffocated by the caul upon its face, or by its lying in a pool of blood and water, or in a mass of feces, or under a limb of the mother, while in a state of exhaustion or unconsciousness; or, in consequence of there being no help at hand, or of the unwillingness of the mother to betray her condition, the child, may be suffocated, or may perish from exposure to cold, etc. While, says Casper, we refuse to be imposed upon by the "impudent lies" which women do not hesitate to tell to conceal their guilt, we should not forget that the dangers to new-born children are very numerous, and that, without any criminal intent upon the mother's part, the child may perish from any of the causes just mentioned, from an injury to the head, from constriction of the umbilical cord, or hemorrhage following its rupture, or from falling into a privy, etc. Even apparent marks of violence must be cautiously interpreted. Prints of finger-nails upon the head and face of the child may have been made by the efforts of the mother to extract the child after the birth of its head, and even a dislocation of the neck, under the circumstance, must be regarded as within the limits of possibility. But if the marks referred to should be accompanied by others which can only be explained by intentional violence, then the former must be more seriously interpreted. Yet it must not be forgotten that many marks of accidental injury are with difficulty to be distinguished from such as are feloniously inflicted. Care should also be taken not to confound these with marks which may have been made after death in recovering the body from cess-pools, privies, and

similar places, or which are merely signs of the voracity of fishes, hogs, rats, etc. In fine, the duty of the medical jurist, called upon to investigate cases like those under consideration, should be to preserve the strictest impartiality, to avoid being biased by his sympathy with the misfortunes of the accused, upon the one hand, or, on the other, by his abhorrence of her imputed crime, and to endeavor to give its just weight, and no more, to every circumstance which the investigation brings to light.

BOOK II.

QUESTIONS ARISING OUT OF THE DIFFERENCE OF SEX.

BOOK II.

QUESTIONS ARISING OUT OF THE DIFFERENCE OF SEX.

CHAPTER I.

DOUBTFUL SEX.

146. Definition of hermaphroditism.— The word "hermaphroditism," which at one time was used to describe the union of the organs of both sexes in one individual, is now generally applied to all those cases in which doubts exist concerning the real sex, in consequence of some aberration from the normal type of the genital organs. The word can no longer be used in its original acceptation, for most certainly there is no authentic case of self-impregnation recorded, nor even of the association of the generative functions of both sexes in one person.[1] The cause of these deviations from the usual form may be found in the earlier stages of embryonic development; but an exposi-

[1] While the generative functions of the two sexes are always distinct, there are many cases known where the one person may take either the active or the passive part in the connection. Such instances are not merely limited to the sexual perversions, but are accomplished more or less completely in these cases of hermaphroditism. Such cases are referred to in the sections on pseudo-hermaphroditism. See § 148, *infra*.

tion of the present state of medical knowledge relative to the processes of faulty evolution would here be out of place.

147. Pseudo-hermaphrodites, in general.— The practical question which we have to determine is, How far is it possible to discriminate the true sex of a living person? The solution of it is attended with no little difficulty, and in some cases is indeed impossible. The physician will be chiefly embarrassed in the case of children, since the important indications derivable from the general as well as local sexual development will be wanting. It should not be forgotten that even after death a positive opinion is, in some cases of hermaphroditism, hardly warranted by the most careful anatomical inspection. The male and female sexual organs, imperfect in development although distinctive in character, may be so evenly distributed that it will not be possible to know which predominate. Or, on the other hand, the traces of sexual organs may be so indistinct that we can give them no appropriate sexual name. Hence the reader will perceive how much more excusable is reserve in pronouncing an opinion upon the sex of a living person, the essential generative organs being concealed from our observation. We can only hope to approximate to the truth, by observing whether there is not some regularity in the freaks of nature, and thus discover, if possible, some uniform correspondence between the visible deviations and those which are hidden from our view. With this object, the cases of hermaphroditism may be divided into the apparent and real, besides which there is a certain number in which literally no sexual organs exist. In the cases of apparent or false hermaphroditism, either male or female character predominates in the external organs of generation, but the former much more frequently.

148. Male pseudo-hermaphrodites.— In male hermaphrodites the only anomaly is external, the internal organs having their natural conformation and development. The penis exists, more or less developed, with an urethra either normal or opening at variable distances between the glans and the pubes,—a condition which is called "hypospadias." The scrotum is divided or cleft, and thus presents a resemblance to the vulva, but neither nymphæ nor vagina are found, although not unfrequently there is a shallow depression or cul-de-sac between these false labia, which is lined with a delicate skin, and bears no very distant resemblance to the vaginal entrance. The testes are found on each side of the divided scrotum. The history of a supposed female named Marie Rosine Göttliche is related, who had been in the practice of cohabiting with the male sex. His genital organs

were formed in the manner here described.[2] Nägele gives a case of twins who were considered as female until their seventeenth year. At this time it was discovered that they were male, the penis being imperforate, and the divided scrotum resembling a vulva, but containing a testis on each side.[3] The case of Adelaide Préville, who lived in the married state for a long time and on good terms with her husband, is related in full by St. Hilaire, with a number of other cases which will also fall under the above general description.[4] Persons with these malformations are not necessarily, though frequently, impotent. Sometimes the only deficiency observable in this class is the absence of the testes from their usual location. But, in this case, the testes are not really absent, but have remained in the abdomen, instead of descending, as is usual, in the ninth month of fetal existence. In the case of persons in this condition, the power of procreation is unaffected, provided the testes are healthy.[5] This anatomical defect is very rare. Siebold states that of 37,000 recruits in Würtemberg, only twenty-four were found in whom the testes had not descended.[6]

149. Female pseudo-hermaphrodites.— By far the greater number of these owe the doubts concerning their sex to an unusual size of the clitoris. Commonly associated with this circumstance are an unfeminine appearance, more or less beard, and a rough and masculine voice and manner; although the sexual desires of these persons are violent, they are usually barren. The usual length of the clitoris in the adult female is about half an inch, but Remer mentions having seen a clitoris an inch long in a girl seven years of age, and Home,[7] one of two inches long and as thick as the thumb, in a negress twenty years old. In addition to this hypertrophied condition of the clitoris, an imperfect urethra with one or more openings is often found, and, at the same time, a constriction of the vagina to such a degree that it becomes almost imperforate. Such was the anatomical condition in Marie Lefort; she had menstruated regularly from the age of eight years until her death at thirty; the existence of a uterus was clearly established. Her voice was masculine, and she had a thick and strong beard.[8] Sir Astley Cooper examined the body of a charwoman, aged eighty-six years, who presented these deviations. He says she differed from other women in the magnitude and length of the clitoris, in the absence of the external orifice of the vagina, which began in the

[2] Casper's Wochenschrift, 1833, No. 3.
[3] Siebold's Handbuch, p. 95.
[4] Hist. des Anomalies, t. II., p. 53.
[5] See § 168, *post*, on causes of impotency.
[6] Siebold's Handbuch, p. 82.
[7] Philos. Trans. 1799, p. 163.
[8] St. Hillire, Hist. des Anomalies, t. II., p. 74, and Debierre, Arch. de l'Anthropologie criminelle et des Sciences Pénales, 1886, I., p. 314.

urethra itself, and in the imperfect development of the ovaries.[9] A woman twenty-five years of age, on account of her notorious commerce with both sexes, was placed under strict police supervision. Resorting to masturbation, her health became so much impaired that she died in the course of sixteen months. The external genitals were found to have their natural conformation, with the exception of the clitoris, which was three and a half inches long and three inches in circumference, and imperforate, except at the base. The uterus and one ovary were rudimentary, and the general conformation of the breasts was masculine, although, owing to the occurrence of a trifling periodical discharge, she was considered to be a woman. It was proved that this person had been guilty of the most astonishing and unnatural excesses with young people of both sexes.[10] A child described by Mr. E. Smith may be placed in the same class, as all the female organs were complete; the only anomaly being that the urethra opened in two places, and the clitoris bore some resemblance to the penis.[11] In a black female subject, dissected by Dr. Jno. Neill, the clitoris was five inches long and one inch in diameter, and resembled a penis, except that it was not traversed by a perfect urethra. The perineal opening was not larger in diameter than a catheter of average size, and the vagina was extremely narrow. On one side of the penis existed what appeared to be a scrotum, but which contained an irreducible omental hernia. This gave the feel of a testicle, but no true glandular structure or excretory tube could be detected. The internal organs were completely female, although not completely developed. The general habitus was feminine.[12] A very similar case is reported by Dr. F. L. Parker.[13] The subject of it was of the negro race, was regarded as a man, bred as a cooper, and had been married as a man. The genital organs were exclusively those of a female, except the clitoris, which measured, after death, an inch and three-quarters externally, and in its entire length five inches. A perfect analogous example in which the clitoris was from two to three inches in length, is reported by Dr. J. Mason Warren. The subject was of Irish birth, bore a man's name, and had a masculine appearance.[14] Dr. Bainbridge has reported the case of a female whose clitoris was five inches in length and of the diameter of the quiescent penis of an

[9] History of a supposed hermaphrodite. by Robert Merry, surgeon. Guy's Hospital Reports, Oct. 1840.

[10] Henke's Zeitschrift, Bd. 44, S. 183, by Albert of Euerdorf.

[11] London Medical Gazette, Vol. XXXIII.

[12] Quarterly Summary of Trans. Coll. Phys. Philadelphia. N. S., Vol. I., No. 3.

[13] Charleston Med. Jour., Jan. 1859, p. 57.

[14] Am. Jour. Med. Sci., Jan. 1860, p. 123.

adult. This malformation was discovered while the woman was in labor.[15] Mr. Wells has described the case of a person in whom the general external organs were those of a hypospadic male; but there were no testes, and a small uterus and one ovary existed.[16] The case related by Dr. Mayer, of Bonn, which gave rise to much discussion, and which is usually classed among the cases of mixed sex, may with more reason, we think, be placed under this head. The only male organs were a (so-called) penis, which was only two inches long, imperforate, and partly concealed under the mons veneris. On the other hand, the orifice of the urethra was situated as in the female, there was a large vagina, a uterus with its appendages, and a defective ovarium on one side, and (what is called) a withered testis on the other. We cannot avoid holding some doubts concerning this last-mentioned organ. From the absence of any account of the seminal tubes, deferent vessels, or seminal vesicles, and the evidently rudimentary nature of this body, it might as properly have been termed an ovary. This supposition would, moreover, have been favored by its position. However this may be, it is evident that the female character greatly predominated. When twenty years of age, this person menstruated on three different occasions.[17] The case of Badaloni, reported[18] in 1895, is associated with considerable medico-legal interest. The husband sought to obtain a divorce from Maura Faustina, who he said was a male, acting as his wife. The husband complained that his wife lay with other women and made him subject of ridicule before his acquaintances. The divorce was granted, and then Maura, in his right as a male, demanded of his brother one half of the property of his deceased father, till then held by his brother. The brother refused, and brought a counter charge of seduction of his wife by the

[15] Lond. Times and Gaz., Jan. 1860, p. 45.

[16] *Ibid.*, Feb. 1860, p. 177.

[17] Neugebauer collected records of sixty-eight marriages between persons of the same sex. In fifty-nine cases the supposed woman was a man. He also notes several instances in which the person of doubtful sex was required to change sex several times. One such was Anne Grandjean, who, until fourteen, was considered as a girl; then she assumed male characteristics and male attire and was married as a man. She had no children and later the marriage was annulled, but she was permitted to live as a woman. Otto reported a very interesting case of Kuluza, who lived happily with her first two husbands, but the third said that she was a man, and asked to be divorced. The two previous husbands had found nothing the matter with her, and the physician who was called in to make an examination decided that she was a woman. The case was appealed, and finally it was decided that she was a woman. Josephine Marzo was baptized as a girl, at puberty considered a boy, and the sex changed, and as such she lived. The necropsy, at an advanced age, proved however, that she was a female. See Neugebauer, British Gynæcological Journal, Nov. 1903, p. 227.

[18] Badaloni, Gazzetta degli ospitali, Milano, July 29, 1895.

ci-devant sister. A certain number of cases are recorded in which a prolapsed uterus or an extroverted bladder has grossly imitated the male organ, but these cases are so easy of detection, and have so little claim to be classified with permanent anomalies of evolution in the sexual organs, that it is not necessary to dwell upon them.

150. **True hermaphrodites, in general.**— The existence of real hermaphrodites has always been doubted, and is still held in doubt by many eminent authorities. By true hermaphroditism we mean the existence in the same person of the essential organs of generation of the two sexes: either the generative glands—the ovary in the female, or the testicle in the male—or the generative passages,—the Fallopian tubes, uterus, and vagina, in the female, or the vasa efferentia, vas deferens, seminal vesicles, and prostate in the male. The coexistence of the glands of the two sexes is termed true glandular hermaphroditism; the coexistence of the genital passages of the two sexes, true tubular hermaphroditism.[19]

As factors of secondary importance in the determination of sex may be considered the stature, form of skeleton, especially of the thorax, pelvis, and long bones; the muscular development, the subcutaneous fat, the hairy system, the larynx and voice, and also the hymen, labia minora, and prostate; but on these alone no diagnosis of sex can be based.

151. **Mixed external and internal.**— The mixed cases, in which the external organs are of one sex and the internal of the other, are few, and can scarcely be called hermaphrodites. One such is the case of Angelique Courtois,[20] in whom the single well-formed and undoubted testis had no excretory duct, but lay under the pervious, fimbriated end of the Fallopian tube. There were no ovaries, seminal vesicles, or prostate. A corresponding case is that of Buillaud and Manec.[21] The patient had attained the age of sixty-two years, and had lived and been married as a man. The external organs consisted of a penis, with the orifice of the urethra at the base of the glans, and an empty scrotum. The internal organs were completely feminine, with the exception of the prostate gland, which occupied its usual position. It is not stated whether the menstrual function was performed.[22]

[19] This classification, and the comments on true hermaphroditism, are taken largely from the thesis of Guéricolas, presented to the faculty of Lyons in 1899: De l'Hermaphrodisme Vrai Chez l'Homme et les Animaux Superieurs.

[20] Follin, Gaz. des Hôpit. Dec. 1851.

[21] Jour. Univer. et Hebdom. de Méd., t. X., p. 467.

[22] Cases of menstruation through the penis, or from an orifice at its base, when imperforate, are on record. One is reported by Dr. Harris, of Virginia, and another by Dr. Barry, of Connecticut, in which it was necessary to deter-

152. True tubular.—As instances of the condition of true hermaphroditism of the tubular type the following may be cited:

1. The case observed by Petit, and communicated to the French Academy in 1820, of a soldier twenty-two years of age, who died of a wound. The penis was normal, the scrotum empty, the testicles occupied the position of the ovaries, and each was provided with an epididymis, a vas, and a seminal vesicle, which emptied into the prostatic urethra. From the same spot emanated the uterus, which was continued into two complete Fallopian tubes. The vagina was absent.

2. Kiwisch and Kolliker[23] have described a case of great interest, of an individual who died at the age of thirty-three. The external genitals consisted of a perfectly normal penis, with a rugose but empty scrotum. Opening into the prostate, of normal size, were the two seminal vesicles and the vasa from the testes, each of which had an epididymis. Likewise, from the prostatic urethra arose a rudimentary uterus provided with tubes 3¾ inches long, with imperfectly developed fimbriæ. In the place of the ovaries were the ectopic testicles.

3. Odin[24] describes the case of a laborer sixty-three years of age, whose autopsy showed a hypospadias (perineal), with the orifice of

mine the sex on account of a denial of a person's right to vote. (Am. Journ. Med. Sci., 1847, July.) Prof. Simpson, of Edinburgh, states, that he has been informed, on credible authority, of two instances where, in males (?), the menstrual discharge was perfectly regular in its occurrence, and considerable in quantity. One of these persons was seventeen years of age, and the other had been married for several years, and his wife had no children. (Art. Hermaphroditism, Cyc. of Anat. and Physiol.) Dr. Blackman saw in the Northern Hospital at Liverpool, a sailor from the American merchantman Rappahannock. He says: "This person was about thirty years of age, and with the exception of the breasts, which were large, had the general appearance of a male. The penis, however, was short, and the scrotum somewhat cleft, so as to resemble in some respects the external labia of the female. At the time of my examination menstrual blood was passing through the penis, and we believe this was a regular monthly occurrence." (Am. Journ. Med. Sci., July, 1853.) A case apparently similar in anatomical conditions to that of Suydam, above referred to, is reported by Dr. Coste, of Marseilles. His patient was twenty-one years of age; the penis was of the size of a boy's of twelve or fourteen years; it was imperforate and the urethra opened at its base. The menses flowed from this orifice at regular periods. There was no external orifice of the vagina, the perineum was covered with hair, the labia majora were rudimentary, and on the right side there was a body like a testicle. The habitus was feminine, and there was no beard. An operation was performed to make an artificial vagina, and eight months afterwards she was married. (Neue Zeitschrift für Geburtzkunde, von Busch, 1836, Bd. 4, H. 2, p. 267.)

Other cases are reported by Forel, Bull. de la Soc. Méd. de la Suisse Romande, Lausaune, 1869, Vol. III., p. 53; cf. Guéricolas, thesis, Lyons, 1899. Gloninger, Amer. Med. Recorder, 1819, Vol. II., p. 371; and King, Canada Med. and Surg. Journ., 1867, Vol. III., p. 472. For still others, see Gould and Pyle's Anomalies and Curiosities of Medicine, p. 27.

[23] Kiwisch and Kolliker, Klinische Vorträge, Abth. II., Prag. 1849.

[24] Odin, Hermaphrodtisme Bisexuel (Lyon medical), t. XVI., p. 214, 1874.

the urethra in the vagina, or rather urogenital canal, in front of the hymen. The vagina ended in a uterus (there was no vaginal portion to this organ), which was rudimentary, and was continued upwards in a cord which led to a fleshy mass at the internal inguinal ring that appeared to be the partially developed testicle and epididymis and testicle. On that same side an imperforate tube led to an ovary-like body. On the opposite side there was a like fleshy mass at the external ring and the cord was much smaller, but the ovary and tube were like those on the opposite side. There was no microscopical examination made of the bodies in relation with the tubes and vasa, so that while they probably were ovary and testis respectively, they can not be considered so proved. But the genital passages are described as characteristic.

4. Klotz[25] described the case of a Jew, twenty-four years old, with a hypospadias and rudimentary vagina, in which, in one side of the cleft scrotum, there was a testicle and vas deferens, on the other side of the pelvis was a uterus and Fallopian tube, which led to a cystic body in the representative of the other half of the scrotum. The microscopical examination of this cystic body failed to show any ovarian tissue, but the patient had given a history of monthly pains and enlargement in this body since the age of sixteen. Admitting that the existence of ovary and testicle was not proved, there remains no question as to the authenticity of the two canals.

5. Boeckel[26] demonstrated to the Academy of Medicine of Paris, in 1892, the case of a young man of twenty years, operated on for congenital inguinal hernia. In that hernia were found a bicornute uterus, a Fallopian tube; and, on the other hand, an epididymis and a vas deferens.

6. Winkler[27] found at the autopsy of a cryptorchid, a long and slender uterus provided with two tubes, one of which was closed, and the other better developed, with a fimbriated outer extremity. In addition there were two testes, each with more or less developed epididymis and vas deferens.

7. Giaccomini,[28] in 1897, cites the case of a man operated on for inguinal hernia, with an ectopic testicle on the opposite side. At the operation were found, arising from the prostate, a bicornute uterus with the tube on one side, while on the opposite side the tube was

[25] Klotz, Arch. f. klin. Chir., XXIV., 3, p. 455.

[26] Boeckel, Münch. med. Wochenschr., 1892, p. 320.

[27] Winkler, Inaug. Disser., Zurich, 1893.

[28] Giaccomini, Gazetta Medica di Torino, May 13, 1897.

represented by a cord whose free extremity opened into the peritoneal cavity, near to rounded body. The external organs and habitus were distinctly those of a man.

S. Siegenbeek van Heukelom,[29] in 1896 examined a preparation from an inguinal hernia operation on a man who had a normal penis, whose left testicle was felt in the scrotum, and whose right testicle was ectopic. He found in the specimen removed at the operation a uterus which led into a feminine genital canal, probably opening into the urethra. The uterus was continued into two horns, of which the left continuation was connected to the left testicle, which was fixed normally in the scrotum. The right horn of the uterus, on the contrary, opened freely into the peritoneal cavity. The uterus was supported by a broad ligament in which were inclosed, both on the right and on the left, the vasa deferentia.

This case of Siegenbeek is of especial value from the precision with which his examination was made, and fully justifies the statement that "by the side of a masculine system in an individual in whom the external parts are distinctly masculine, there may exist a complete bilateral feminine canal."[30]

153. True glandular.— Instances of true glandular hermaphroditism are infinitely more rare, and in nearly all cases lacking in the authenticity of proof. The well known case of Catharine Hofmann, who was presented at nearly all of the clinics in Germany, and examined by Schultze, Friedreich, Virchow, and others, was at first believed to be a definite case of hermaphroditism, because, in addition to the evident menstruations which she had, spermatozoa were also found. However, she was accused of fraud as to the menstruation by Ahlfeld and Pozzi, who retracted the previous opinion, and considered the case as one of pseudo-hermaphroditism with perineoscrotal hypospadias. The absence of an autopsy did not permit the verification of the conditions of the internal organs.[31]

The case of Gast[32] is more worthy of credence. It was that of a fetus born dead with exstrophy of the bladder. There was a uterus didelphys. The left uterus had a short, permeable tube with vibratory cilia, and, laterally, an ovary. On the same side there was a testicle distinct from the ovary, with a gubernaculum. The right

[29] Siegenbeek van Heukelom, Sur l'Hermaphrodisme Tubulaire et Glandulaire (Recueil des Travaux du Laboratoire de Boerhaave, 1899, t. II., p. 509).

[30] Guéricolas, Thesis, Lyons, 1899, p. 35.

[31] Guéricolas, p. 42.

[32] Gast, Beitrage z. Lehre von dem bauchblasen Genitalsspalt u. von dem Hermaphrodismus verus. Inaug. Dis., Berlin, 1884.

uterus had a very long tube but no ovary or testicle on that side. The microscopic examination of the ovary showed beyond question the presence of the ovules; that of the testicles showed the presence of the fine canaliculæ, lined with characteristic round and polygonal cells, the constituent parts of which, however, could not be made out. Debierre, Heppner, Perls, Reyter, and Blacker and Lawrence have no hesitation in calling the case one of unilateral glandular hermaphroditism.

A similar case has been published by Blacker and Lawrence, and two other cases of lateral or alternate hermaphroditism, one by Obolonsky in 1888, and one by Schmorl, which have passed the criticisms of many,[33] but do not satisfy, in their precision, the demands of all.

Heppner[34] in 1870, described the only case in which, so far as was known to Guéricolas, in 1899, there was proved incontestably the simultaneous presence of the sexual glands, male and female, in addition to the coexistence of certain more or less essential sexual organs. The subject was a premature infant, Paul B., born before term, and living seven weeks at the Saint Petersburg hospital for foundlings, to which he was admitted on the 19th of January, 1858. At the time of the autopsy the case was considered as one of spurius female hermaphroditism. It was found there some ten years later by Heppner, who made a searching examination of the specimen, with the following findings:

The external organs consisted in a hypospadiac penis, a scrotum, which was empty, and a urogenital canal opening just below the penis. Into the anterior part of this canal opened the urethra, and into the posterior part, the vagina. The urethra led into the bladder and was surrounded by the prostate. There were no seminal vesicles.

The internal organs were represented by a uterus with a prominent cervical portion protruding into the vagina, and in every way normal. To it were connected the two Fallopian tubes, which were permeable, and opened into the peritoneal cavity by fimbriated ends, as normally. In the usual situation were the two ovaries, the left 13mm. long, the

[33] Blacker and Lawrence, Transactions of the Obstetrical Society of London, Vol. XXXVIII. A Case of True Unilateral Hermaphroditismus with Ovitestis in Man.

Obolonsky, Arch. f. Heilkunde, IX., 211, 1888. Beitrage z. pathol. Anat. des Hermaphrod. Hominis.

Schmorl, Virch. Archiv. B. 113, P. 229. Ein Fall von Hermaphroditismus.

[34] Heppner, Arch. f. Anat. u. Physiol. of Reichert and Dubois-Reymond, p. 679, 1870. Ueber den Wahren Hermaphroditismus beim Menschen.

For other instances of hermaphroditism, see Gould and Pyle's Anomalies and Curiosities of Medicine, p. 206.

right, 17mm. long. Just below the external ends of the two ovaries were two other bodies representing the testes, the left measuring 7 by 4 by 2 mm., the right 5 by 4 by 2 mm. Just above the left testicle was a group of glandular ducts, sixteen or seventeen in number, with an external aspect like that of the organ of Rosenmüller. These ducts formed a compact mass at a little distance from the testis, and extended towards that organ, perhaps half of them being traceable directly to the testis. On the right the organ of Rosenmüller was situated between the ovary and the testis, but was not quite so well developed as on the other side. It could be recognized as composed of tubes closely united, but it could not be determined whether the tubes in the middle of the organ led to the ovary or to the testis. The round ligaments of the uterus arose from the angles of the uterus, and, crossing the ureters, led to the inguinal canals. The microscopical examination of the ovaries demonstrated the presence of ovisacs and Graafian follicles; that of the testes showed the tunica albuginea, the fibrous septæ, the glandular tubes—canaliculæ—filled, lined with cells of variable volume, containing granular protoplasm, and generally with a distinct nucleus. In the lumen of the canals were numbers of nuclei, completely filling the tubes, but there were no cells like those in the walls. In the network of the ducts, which had a much smaller caliber than the seminiferous canals, the nuclei were agglomerated in masses and arranged longitudinally. These glands near the ovaries have, however, been re-examined by Pozzi[35]—confirming Heppner's work to a large extent, but Pozzi considers that the extra glands are so rudimentary that, at their stage in development, it is impossible to distinguish between rudimentary testes and rudimentary ovaries. Hence, he says that the proof of the existence of glands of both sexes is still wanting in this case, too.

153a. In animals.— In the higher animals several instances of complete true bilateral hermaphroditism have been recorded:[36] one in a goat, by Schnopfhagen, in 1877; one in a hog, by Reuter, in 1885; and one in a goat by Guinard, in 1893; all confirmed by microscopic examination.

154. Embryological objections.— The possibility of the existence of true hermaphroditism has been objected to on the ground that the ovary and the testis arise from the same embryological elements. On such grounds the cases cited as of true hermaphroditism must be ex-

[35] See Goffe, Amer. Journ. Obst., Dec. 1903, p. 755.

[36] Schnopfhagen, Medicin. Jahrbücher, Wien, 1877, p. 341; Reuter, Thesis, Wurtzburg, 1885; Guinard, Journ. de Méd. Vét. published at the Lyons school, July, 1890.

plained as incorrect observations. These observations, however, have been made by some of the highest medical authorities and are as credible as any that we have. Moreover, the embryonic origin of the two glands in lower animals has been demonstrated to be not identical,[37] and there the possibility of the two glands coexisting is admitted by almost, if not all, authorities. And some of the highest authorities, such as Waldeyer,[38] consider the origin of the testes and ovaries from independent and distinct sources as proved for man.

155. Absence of sexual organs.— The opposite condition to hermaphroditism—the absence of sexual organs—is, so far as we know, represented only by the case where the external organs of generation are wanting or markedly rudimentary. Siebold states that he has in his museum the specimen of a child with no external genitals, but with two testicles in the abdomen. The case is related in full in Faber's "Duorum Monstrorum Humanorum Descriptio Anatomica." He also refers to another case of a child three years old in whom no internal generative organs were found, and externally only a urethral canal. From the doubt which has been cast upon the anatomical observations of all kinds made more than fifty years ago, by re-examination of the old specimens, a corroboration of this statement would be most acceptable and desirable before it is admitted as of great value.

156. General comments.— The foregoing enumeration of the anomalous conditions of the sexual organs will suffice, we think, to convince the reader, upon careful examination, that the determination of sex in a living person presenting any of those which are external, is attended with much difficulty, in consequence of the absence of a uniform correspondence between the outward and inner defects. It will also be seen from some of the cases, that reliance cannot be placed upon the general conformation of the individual, nor upon the tastes and habits, since experience shows that the indications derived from them are often fallacious. Practically, therefore, the question must often remain unresolved, or be determined solely by the sexual predominance in the external organs alone. It may be observed, however, that the rarity of real duplicity of sex, or of the complete absence of the sexual organs, compared with the ordinary cases of presumed hermaphroditism, from the penis being inperforate, the testes not descended, or the clitoris excessively developed, is so ex-

[37] Laulanié, Comptes rendus de la Soc. de Biol, 1886, pp. 87, 133, and 1887, p. 183. Also Comptes rendus de l'Académie des Sciences, Aug. 3, 1885.

[38] Waldeyer, Eierstock und Ei, 1870.

treme, that the question will, in its legal relations, seldom require elucidation.[39]

In conclusion, we cannot forbear referring to an instance[40] in which an operation was performed with the object of depriving a child "of that portion of the genital apparatus which, if permitted to remain until the age of puberty, would be sure to be followed by sexual desire, and which might thus conduce to the establishment of a matrimonial connection." The child was three years old, had been considered a girl until the age of two years, when she began to evince the tastes, dispositions, and feelings of the other sex; she rejected dolls and similar articles of amusement, and became fond of boyish sports. "There was neither a penis nor a vagina; but, instead of the former, there was a small clitoris, and, instead of the latter, a superficial depression, or *cul de sac,* covered with mucous membrane, and devoid of everything like an aperture or inlet. The urethra occupied the usual situation[41] and appeared to be entirely natural; the nymphæ were remarkably diminutive; but the labia were well developed, and contained each a well-formed testis, quite as large and consistent as this organ generally is at the same age in boys." After mature consideration an operation was resolved upon and the testes removed. They, as well as the spermatic cords, are described as being perfectly formed in every respect. Three years after the operation the disposition and habits of the child had undergone a material change, and she took delight in all feminine occupations. The author proposes this example as a precedent in similar cases. We sincerely hope that it may not be followed. The operation removes merely the external, and in cases like this, the very distinct, evidence of sex, and hence only adds to the doubts of the rightful sexual character. It does not necessarily extinguish the sexual instinct, nor deprive the person of "his only incentive to matrimony," and, finally, in no

[39] In those instances in which the sex of a person is indeterminate, Ahlfeld recommended that, as the majority of the cases prove to be males, the child be brought up as a male. Lawson-Tait, on the other hand, recommends that, as the change from male back to female would be more disconcerting for the girl, that the child be brought up as a girl. Neugebauer, in reviewing these two positions, says that while the change for that one individual from apparent male to female sex is less pleasant for the apparent male, yet the dangers of a male among women is like that of the wolf in sheep's clothing, and capable of great harm to the community. See Neugebauer, Brit. Gynæc. Journ., Nov. 1903, p. 227.

[40] Case of Hermaphroditism, Involving the Operation by Castration, and Illustrating a New Principle in Judicial Medicine, by S. D. Gross, M. D., Prof. of Surgery in the Medical Department of the University of Louisville.

[41] Whether this was the usual situation in the male or female does not appear; it was probably the latter.

way relieves him from the odium or aversion with which the malevolent or ignorant may regard him.

An analogous case of "a pseudo-hermaphrodite in which the female characteristics predominated, with an operation for the removal of the penis, and the utilization of the skin covering it for the formation of a vaginal canal," is reported very recently by Goffe;[42] but whether even this, with its apparent happy results to the patient, is to be commended, is questioned by the medical fraternity at large.

[42] Goffe, Amer. Journ. of Obstet., Dec. 1903, p. 755.

CHAPTER II.

SEXUAL DISABILITY.

157. Definition.
158. Normal fertile period in woman.
159. Precocious menstruation.
160. Precocious pregnancy.
161. Late pregnancy; postponed menopause.
162. Causes of sterility in woman.
    162a. Ovaries atrophic or diseased.
    162b. Artificial menopause.
    162c. Fallopian tubes.
    162d. Uterus.
    162e. Vagina.
    162f. Psychical causes.
    162g. Physical inaccessibility.
    162h. Constitutional disturbances.
163. Sexual disability in man, in general.
164. Normal virile period, in general.
165. Precocious virility.
166. Precocious paternity.
167. Late virility.
168. Causes of sterility in man; testes atrophic or diseased.
    168a. Castration.
    168b. Obliteration of vas deferens
169. Impotence.

157. Definition.— The question of sexual disability comes up for consideration repeatedly in petitions for divorce, and in connection with the validity of marriage, and we must look at the subject from the standpoint of each sex, both man and woman. In the woman the question is one of sterility. In the man there arises not merely the question of sterility, or absence of the essential male element, but also that of impotence,—the inability to carry that male element into the normal female receptacle.

158. Normal fertile period in woman.— In the woman the usual fertile period is coincident with that of menstruation,—from puberty till the menopause. Puberty, the age at which the menses begin, is, in the temperate climates, at about fourteen or fifteen years; but variations from this age are not at all uncommon, and pregnancy be-

fore menstruation is well authenticated.[1] The most interesting, from a medico-legal point of view, are those of precocious menstruation.

159. Precocious menstruation.— Mr. Whitmore relates an interesting instance of precocious development of a female child. The menses appeared a few days after birth, and continued to recur at regular intervals of three weeks and two or three days until her death, at the age of four years. The development at this age was equal to that usual at ten or eleven. The mammæ were unusually large; the mons veneris was covered with hair, and the development of the genitals was considerable. It is stated that she manifested at her monthly periods the reserve usual to women at such times.[2] Dr. Charles Wilson of Pennsylvania, met with a child five years old who had menstruated irregularly from the fifth month of her life. She was of the usual stature of children of her age, but very stout and fat. Her breasts were about the size of a well-developed adult virgin's, and the pudendum was thinly covered with black hair.[3] Velpeau quotes the case of a young girl, in Havana, whose menses appeared at the age of eighteen months, and continued regularly afterwards. The child, moreover, exhibited in her development all the characteristics of puberty. A girl in New Orleans was born in 1837 with her breasts developed and the mons veneris covered with hair. Her catamenia appeared at the age of three years, and continued to return every month thereafter. A case is mentioned in the Lancet where menstruation commenced at the age of two years.[4]

160. Precocious pregnancy.— Another case is reported where menstruation began in the tenth year; the girl became pregnant between the eleventh and twelfth, and bore a child.[5] A similar case is reported by Dr. J. B. Walker, in which menstruation commenced at the age of eleven and a half years, and the girl was delivered of a child when only twelve years and eight months of age.[6] Ahlfeld refers[7] to a case by Haller of a girl whose menses were regular after the second year, and who was delivered at term at nine years of age. D'Outrepont met with other cases of pregnancy, at the ages of thirteen and nine.[8] Dr. Rowlett reports a case[9] that occurred in Kentucky of a

[1] See §§ 1 *et seq.*, *ante*.
[2] Amer. Journ. Med. Sci., Oct. 1845, p. 430.
[3] Phil. Med. Exam., Dec. 1853, p. 746.
[4] Lancet, Jan. 29th, 1848. For many other cases of precocious menstruation, see Gould and Pyle's Anomalies and Curiosities of Medicine, 1897, p. 29.
[5] Lond. Med. Gaz., Nov. 1849.
[6] Bost. Med. and Surg. Journ., Sept. 9th, 1846.
[7] Ahlfeld, Lehrbuch, IIte Aufl., 1898.
[8] D'Outrepont, Henke's Zeitsch., 1844.
[9] Transylvania Journal, Vol. VII., p. 447.

girl whose menstruation began in the first year and pregnancy in the ninth. Within two weeks after her tenth birthday anniversary, she was delivered of a child weighing seven and three quarters pounds. Hofmann[10] describes a case of precocious menstruation, with hair on the mons veneris, at two and a half years, but the internal genitals were undeveloped. He also reports a case from Boulet of a girl pregnant at ten years, who had menstruated since her first year, and another from Kussmaul of a girl who was pregnant in her eighth year and delivered in her ninth year.[11] Dodd[12] speaks of a girl nine years and eight months old who was delivered of a living child weighing seven pounds. The labor pains did not continue over six hours.

161. Late pregnancy; postponed menopause.— The usual age for the cessation of the menses and child-bearing capacity is from forty-five to fifty years; but here, too, there are many exceptions, and here again pregnancy may occur after the cessation of the menses. Barker[13] reports the case of a woman, the mother of six children, whose menopause appeared at the forty-second year of her age; but she became pregnant again four years later. He also reports another case where the woman became pregnant in her forty-seventh year, three years after the cessation of her menses. He also mentions three cases of pregnancy after the fiftieth year. Hofmann[14] also cites a case reported by Dr. Mayer, in 1894, of a woman fifty-nine years old and already a great grandmother, who was delivered of a child. Her menses had occurred at long intervals since her fifty-fifth year. Kennedy describes[15] the case of a woman of sixty-three who at that age gave birth to her twenty-second child, and afterwards continued to menstruate. Orfila[16] quotes a case from Bernstein of a woman who began to menstruate at twenty years of age, and continued until her ninety-ninth year. Her first child was born when she was forty-

[10] Hofmann, Gericht. Med., 8te Aufl. 1902, p. 70. Hofmann also refers to a collection of cases by Howitz, Petersburger Med. Ztg., VIIte Jahrgang, XIII.

[11] La Semaine Medical for February 9th, 1898, Vol. XVIII., p. 59, contains a list of about thirty cases of pregnancy in girls under fourteen years of age. Three younger than that of Dr. Rowlett. One of them from D'Outrepont, in 1825, of a girl in her ninth year, who had a miscarriage; the one from Dodd, and the third from Molitor, of the Grand Duchy of Luxemburg, where a girl of eight years and ten months was delivered of a dead seven-months fetus.

[12] Dodd, The Lancet, London, 1881, Vol. I., p. 601. For many other instances of precocious impregnation, see Gould and Pyle's Anomalies and Curiosities of Medicine, p. 34.

[13] Virchow's Jahresber., 1874, Vol. II., p. 728.

[14] Hofmann, p. 72.

[15] Cited by Williams, from Edin. Med. Journ., Vol. XXVII., pp. 1085, 1882.

[16] Méd. Lég., 4th ed., 1848, Vol. I., p. 257; also Briand, Man. de Méd. Lég., 1846, p. 137; and for many other cases see Gould and Pyle's Anomalies and Curiosities of Medicine, 1897, pp. 32 and 38.

seven years of age, and her seventh and last child when she was sixty. In the Lancet, 1866, Whitehead reports that he was called to see a case of profuse menstruation in a woman who was then seventy-seven years old, and had always been regular in her menses. In the Amer. Journal of Medical Sciences for July, 1845, page 172, there is the report of a case of a nun who was regular in her menses until fifty-two years of age, when they disappeared, to reappear at sixty-two. After that they continued regular until the woman was lost sight of at the age of seventy-two. And another case is there reported of another nun who menstruated regularly from fifteen to fifty-two years of age. Then, after a lapse of eight years, they reappeared at the age of sixty, and continued regular until the woman was last seen at the age of ninety years. It would seem, then, impossible to put a definite upper limit on the child-bearing age, or, at least, on the age to which menstruation may continue. But if we take the following figures of Neuermann[17] of a thousand births we can see that the probability of pregnancy after a woman is fifty years of age is very slight. Neuermann found one hundred and one children born when the mother was forty-one; one hundred and thirteen at forty-two; seventy at forty-three; fifty-eight at fortyfour; forty-three at forty-five; twelve at forty-six; thirteen at forty-seven; eight at forty-eight; six at forty-nine; nine at fifty; one at fifty-two; one at fifty-three; and one at fifty-four years. Barker, in 1875, said that there was no authentic case of childbirth in a woman over fifty-five. And two legal cases[18] are recorded where women of fifty-three were considered as past the child-bearing period of life. On the other hand, a child was born to a woman of fifty-eight years, and the courts considered the child legitimate.[19]

162. Causes of sterility in woman.— During the normal period of fertility various factors may come in to influence the woman, and produce sterility, for certain congenital defects may become evident as the causes of sterility.

162a. Ovaries atrophic or diseased.— The essential female organs may be the seat of the trouble, as in the cases where the ovaries are congenitally absent or atrophic. The ovaries may be diseased so that even though the ova may be formed, they can not be discharged into the Fallopian tubes and carried to the uterus, as in the cases of thick ovarian capsule. Disease of the ovaries, and tumors of the ovaries,

[17] Méd. Lég., 4th ed., Vol. I., p. 257.
[18] *Price* v. *Bousted*, and *Haynes* v. 27. Cited by Montgomery. *Haynes*, 1866; quoted by Taylor, p. 688.
[19] Mem. de l'Acad. de Chir., t. VII., p.

need not always be associated with sterility unless the entire substance of both ovaries is involved.

162b. Artificial menopause.— In this connection, also, must be mentioned the cases of operative removal of both ovaries, which produces an artificial menopause and sterility. But the remains of even a portion of one ovary is sufficient to supply ova for future pregnancies.[20] Recent work in ovarian grafting may also have some bearing upon this question of sterility. Dr. R. T. Morris[21] has shown that in rabbits the grafting of the ovaries of another rabbit after the removal of both of the rabbit's ovaries supplied the necessary element, for twice in two cases, after the removal of both ovaries and the implantation of the ovary of another rabbit, pregnancy followed. In one case, in a woman who had ceased menstruating after the removal of both ovaries, an ovarian graft was made and the woman menstruated regularly for several months after this grafting. In another case an ovarian graft was placed in a woman who had never menstruated on account of an infantile uterus. She menstruated for over a year after the operation. Whether such treatment will carry the cases of congenital sterility into the class of remediable sterility remains yet to be proved.

162c. Fallopian tubes.— Disease of the Fallopian tubes which will prevent the passage of the ova into the uterus similarly is a common cause of sterility.

162d. Uterus.— Changes in the uterus which make it an unsuitable nidus for the developing ovum are perhaps the most common causes of sterility. The uterus may remain undeveloped or it may atrophy from some cause, or its mucous membrane may become inflamed or the seat of some tumor, as a fibroid, which interferes with the development of the ovum. With these may be grouped the cases of disease or malformation of the cervix, which have the same result. But here the cause of the sterility is not so much the unsuitable nidus for the ovum as the interference with the entrance of the spermatozoa. The changes to be reckoned in this class are the malposition of the entrance into the uterus, due to a long cervix, or to a malposition of the uterus, or stenosis of the mouth, due to congenital formation, or to scars, or to carcinoma. Here, too, inflammation of the cervix must be classed, for many gynecologists consider the plugging of the

[20] Instances of menstruation after the removal of both uterus and ovaries have been reported by Storer, Lancet, London. 1866, Vol. II., p. 471; Clay, Lancet, London, 1880, Vol. I., p. 15; Tait. Med. Times and Gazette, 1884, Vol. I., p. 662; and Brit. and For. Med. Chir. Rev. No. 22. 1873, Vol. I., p. 296.

[21] Journ. Amer. Med. Ass., Oct. 17, 1903, Vol. XLIV., p. 980.

cervical canal with inflammatory mucus a sufficient cause for sterility. Inflammation of the vagina, with the production of a secretion that kills the spermatozoa which are deposited there, and tears of the perineum, permitting the escape of the seminal secretion, are also recognized causes of sterility.

162e. Vagina.— Of the absolute and incurable causes of sterility, those depending upon malformation are the only ones of practical importance. Dr. Meigs relates a case of entire absence of the vagina, the external sexual organs being perfectly natural. An incision was made, by Dr. Randolph, three inches and a half in depth, but he could find no vagina.[22] Dr. Oldham reports the case of a servant girl whose health had been delicate for some time. "She had not menstruated, suffered periodical pains in the pelvis, or any vicarious bleeding. She had a dull, inanimate, and rather timid look, with the voice and articulation of a delicate female. Her mind was apathetic, and she was sexually indifferent. The chest was flat, and the mammary glands scarcely developed. The pelvis was well formed. The mons veneris, external labia, nymphæ, and clitoris were normally developed, and the first covered abundantly with hair. The situation of the orifice of the vagina was occupied by a raised raphe of mucous membrane, but there was no aperture." A catheter being introduced into the bladder, and the finger into the rectum, no solid intervening structure and no trace of uterus could be discovered.[23] In the case of a married woman who died at the age of seventy, the internal organs were but slightly developed, and a shallow depression represented the vagina. On inspection from within the pelvis, this organ was found to be totally wanting. Rudimentary ovaries existed in the abdomen, and rudimentary separate halves of the uterus were found in the pelvis.[24] Two other examples, in all probability, of the same malformation, are reported, the one by Dr. J. M. Warren,[25] and the other by Dr. C. Coates.[26] Troschel relates the case of two sisters in whom the uterus was wanting.[27] Siebold examined a woman, twenty

[22] Velpeau's Midwifery, p. 114.

[23] Guy's Hosp. Rep., Vol. VI., p. 362.

[24] Edinb. Month. Journ., N. S., Vol. VII., p. 230.

[25] Bost. Med. and Surg. Journ., May, 1857, p. 297.

[26] Times and Gaz., July, 1858, p. 6.

[27] Rust's Magazin, Bd. 37, S. 163; Gaz. Méd., 1851, p. 9, by Dr. Zeibl, of Nuremberg. Total absence of uterus in a woman fifty-seven years of age, observed after death. Dr. Meigs relates two cases of total absence of uterus, but with otherwise perfect sexual development, in his own practice. (Treat. on Obstet., p. 131.) Dr. G. S. Crawford gives another case of absence of uterus. (N. W. Med. and Surg. Journ., Nov. 1850.) Dr. Cummings found the uterus half an inch long, and the ovaries mere lines, in a woman who had never menstruated. (Ed. Month. Journ., Sept. 1854, p. 275.) Dr. Chew, of Baltimore observed a case in which the uterus was absent. The woman was twenty-two years of age, and had never menstruated. (Am. Journ. Med. Sci., 1840, p. 39.)

years of age, in whom the vagina was like that of a newborn child; no uterus could be discovered by an examination per rectum.[28] Dr. Rüttel had under his care a woman twenty-seven years old, of small stature. The external genitals were like those of a child nine or ten years of age; the vagina was smooth, very narrow, and hardly two inches long; the mouth of the uterus hardly perceptible, and the uterus itself of the size and shape of an olive. The breasts were undeveloped.[29] A curious case is quoted by Siebold, in which, although there were no external sexual organs whatever, nevertheless the woman became pregnant. The impregnation was effected through the rectum, in which a small orifice communicated with the vagina. At the approach of labor, this opening was widened by the knife, and the woman was delivered of a child which lived six hours.[30] Mr. Hunt related to the Medical Society of London, the case of a lady, aged thirty, of refined mind and feminine development, who consulted him for stricture of the rectum. The meatus urinarius was more capacious than usual, and there was no vaginal aperture, the perineum being continued from the anus to the meatus. No trace of the fundus uteri or of ovaries could be felt by the rectum. The clitoris and labia were normal, the mammæ well developed, and sexual feeling was normal. She had never menstruated or had any periodical inconvenience.

162f. Psychical causes.— Other cases of sterility, of a psychical nature, are sometimes as operative as the physical impediments. For the most part they are exceedingly intangible. In the Causes Célèbres an amusing instance of want of sexual harmony is given by Pitaval. Two gentlemen of rank, very much of the same age and personal appearance, were both married to wives who proved unfruitful after several years of marriage. The two couples at last determined to proceed to a celebrated watering place in the hope of deriving some benefit from the change, and the use of the springs. On the way they put up at an inn and retired for the night. But the two wives had preceded their husbands to bed, and each of the latter mistook his friend's room for his own. In consequence of the mistake both of the ladies proved with child.

162g. Physical inaccessibility.— A certain number of other cases of sterility are due to the inaccessibility of the woman. Such conditions are seen in large herniæ, elephantiasis, possibly in bony deformity of the pelvis, making the separation of the thighs impossible. Also

[28] Handbuch, p. 91.
[29] Henke's Zeitschrift, Bd. 47, p. 250.
[30] Handbuch, p. 88.

in the absence of a vagina, an imperforate hymen, congenital or acquired stenoses of the vagina, or adherent labia. Temporarily, also, in prolapse of the uterus. One of the most absolute bars to intercourse is seen in the extreme sensitiveness of an acutely inflamed vestibule, a urethral caruncle, or the peculiar condition with no physical evidence, called vaginismus. Here the lightest touch to the external genitals produces such pain and spasm of the vulvar muscles that even the entrance of an examining finger, most carefully approached, is debarred.

162h. Constitutional disturbances.—One more group of causes of sterility in woman must be mentioned. These are the constitutional disturbances which affect the nutrition of the woman and the child. Such are seen in typhoid fever, cholera, scarlet fever, diabetes, nephritis, anemia, and obesity.

163. Sexual disability in man, in general.— In the man the sexual disability may be due to the absence of the spermatozoa, which would be sterility in the broad sense of the word; or to inability to copulate, or impotence. The word "impotence" is frequently used to mean inability to procreate, in which sense it would include also sterility.

164. Normal virile period, in general.— Normally, the essential male elements, the spermatozoa, are produced first at puberty, which, in the temperate climates, occurs at about fifteen years of age, and continues indefinitely until the atrophy of the testes.

165. Precocious virility.— Cases of precocious virility are rather more rare than those of precocious menstruation. The establishment of puberty is marked by the well-known signs: the development of the genital organs, the appearance of the hair on the pubes and in the axilla, the growth of the beard, and the change in the voice. Curious instances have been reported of sexual precocity. The most astonishing of these is one related by Professor Stone, of Washington.[31] The child was only four years old; he was four feet and a quarter of an inch in height, and weighed nearly seventy pounds. His bones and muscles were developed in an extraordinary degree, his voice was grave, and the pubes were covered with a luxuriant growth of hair. The penis measured, in a semi-flaccid state, four and a quarter inches in length, and when perfectly flaccid three and a half inches. The prepuce was short, leaving exposed a perfectly formed glans penis. The papillæ of the corona glandis were salient, and exquisitely sensitive. In the scrotum were two firm, apparently well-developed testi-

[31] Amer. Journ. Med. Sci., Oct. 1852, p. 561.

cles, perhaps rather under the average size of those organs in the adult. The spermatic cords were distinct, and, under the finger, gave the impression of perfect organs. His father having observed "during the night, when he had slept with him for the first time, a constant erection of the penis, accompanied by a nickering, like an excited stallion," consulted Dr. Stone concerning him. The boy was said to be extremely fond of embracing the opposite sex, and on one occasion, when in bed with a near relative, a married lady, the latter was aroused by finding him closely clasped to her back, and her night-dress saturated with glutinous material—very different from what she expected, as she supposed he had emptied his bladder upon her. The reporter had no opportunity of examining the secretion with the microscope.

Dr. Rüttel[32] observed a case in which a girl of fourteen became pregnant by a boy of the same age.

Mr. Ruelle, of Cambria, has recorded an example of precocious virility. A child three and a half years of age, muscular and strong as one of eight, had all his male organs of the full adult size, with long black hair on the pubes, and, under excitement, discharged semen four or five times daily. He had also a full male voice, and dark short hair on the cheek and upper lip.[33]

Pryor[34] speaks of a boy of three and a half years who masturbated, and who, at five and a half, had a penis of adult size, hair on the pubes, and was known to have had seminal emissions.

166. Precocious paternity.— Cases of early paternity are, however, the best evidence of the procreative ability of the man. Hirst[35] reported the case of a girl fourteen years of age who became pregnant from a boy of thirteen years; and two cases are on record, one from Boecher[36] and one from Klose,[37] in which the father was a boy of nine years. In the case reported by Klose the mother was a girl of fifteen.

167. Late virility.— The old age limit at which spermatozoa are no longer produced is very indefinite. From the examination of the cadaver, Dieu found[38] spermatozoa present as follows:

[32] Henke's Zeitsch., 1844, p. 249.

[33] Brit. and For. Med. Rev., Jan. 1844, p. 277; and Bull de l'Acad. de Méd., Paris, Feb. 28, 1843.

[34] Transactions of the Obstetrical Society of London, Vol. XXII., p. 521. For other cases, see Gould and Pyle's Anomalies and Curiosities of Medicine, p. 343.

[35] B. C. Hirst, St. Louis Med. and Surg. Journ., Dec. 7, 1891.

[36] Boecher, Gericht. Med., p. 258, quoted by Brouardel.

[37] Klose, Syst. den gericht. Physik. p. 250.

[38] Journ. de l'Anat. et de la Phys., 1867, p. 449.

Age.	Number of Cases.	Spermatozoa Present.
64–70	14	64.3%
70–80	49	44.8%
80–90	38	26.3%
90–97	4	0.0%

Curling[39] has found spermatozoa in the secretion of a man eighty-seven years of age. Montgomery[40] cites the case of Sir Stephen Fox, who was married at seventy-eight, and after that had four children, the last when he was eighty-one years old. Gooch[41] mentions the case of a man eighty-years old, who was the father of four children at one birth. Rüttel[42] cites the case of a man marrying at ninety-two and having two children. And Harvey[43] gives an account of Thomas Parr, who lived to the age of one hundred and fifty-two years and nine months, and in his description of the autopsy says that the testes were large and sound, so that it seemed not impossible that the common report was true,—namely, that he was convicted of rape after his hundredth year; and his wife, whom he married in his hundred and twentieth year, said that he had intercourse with her frequently until twelve years before his death. John Gilley,[44] who died at the age of one hundred and twenty-three, was married at seventy-five, and after that had eight children. He was virile until three years before his death. Baron Baravicino de Copelis[44a] died in 1770, at the age of 104 years. He was married for the fourth time at the age of eighty-four, and by that wife had seven children. Moreover, his wife was pregnant at the time of his death. Baily[45] cites two other cases, one of Francis Augé who died in Maryland in 1767, at the age of one hundred and thirty-four, and had a son born to him after his hundredth year; and Setrasch Czarten (Petratch Zarten) who was born in Hungary in 1537, and died at the age of one hundred and eighty-seven, when a son ninety-seven years of age was still living. This son must have been born when the father was ninety years of age.

On the other hand, potency may continue after fertility has ceased, so that, in spite of the absence of spermatozoa, the lust may be

[39] On Sterility in Man.
[40] Signs and Symptoms of Pregnancy.
[41] Compendium of Midwifery, p. 258.
[42] Henke's Zeitsch., 1844, p. 249.
[43] Philosophical Transactions of the Royal Society of London, 1731, Vol. III., p. 306, 4th ed.
[44] Gould, Anomalies and Curiosities of Medicine, p. 377.
[44a] *Ibid.*
[45] Baily, T., Records of Longevity, London. 1857.

present. Hofmann[46] mentions the case of a man seventy-four years of age, who died during coitus with a prostitute. No trace of spermatozoa could be found in the cadaver.

168. Causes of sterility in man; testes atrophic or diseased.—Sterility during this period of ordinary functional ability may, however, be present, due to nondevelopment of the testis, in which condition the testis remains in the abdomen, and does not descend into the scrotum. Not all cases of undescended testes have atrophic testes. In fact, one of the most striking cases of precocious development was in a boy of three years and ten months. His weight was eighty-two pounds; height, four feet and one half inch; girth of chest, twenty-seven and a half inches; thigh, nineteen inches; length of penis, four inches; circumference, three and a half inches; testes not descended; whiskers and hair in the axillæ were present. Nor, on the other hand, does the apparently feminine habitus indicate sexual incapacity.

Sterility may also be due to atrophy of a testicle which has descended into the scrotum and even been functionally active. Such atrophy is associated with either local disease of the testis[47] or the scrotal contents, as in the case of varicocele or scrotal hernia; or to some more distinct disturbance. Atrophy of the testis may sometimes be produced by mechanical injury to the spinal cord or brain. Both Larrey and Hennen mention cases in which, from a blow with a saber upon the occiput, impotence followed. Atrophy of the testes has also been described after the use of certain drugs. That after the persistent use of iodine or potassium iodid is well known;[48] and Larrey states that many of the French soldiers in the French expedition to Egypt became impotent from atrophy of the testes, which he ascribed to the use of date brandy sophisticated with pseudo-capsicum.

Disease of the testis, if both organs are involved, which is not usually the case, may also cause sterility. In such cases the extent to which the glandular structure of the testes is involved can not be determined without the removal of the organs; and hence it would not be possible to say positively that the disease was the cause of the sterility, for as long as a portion of the glands remains functionating, spermatozoa may be produced.

[46] Hofmann, Gericht. Med. 8te. Aufl. 1902, p. 59.

[47] Two thirds of the cases having orchitis after mumps are followed by atrophy of the testes, according to Brouardel. (Le Mariage, p. 124.) He gives a table of 562 cases of mumps, followed in 163 instances by orchitis. Of these 103 had atrophy of the testis which was involved.

[48] H. C. Wood's Therapeutics, 9th ed. 1894, p. 583. Case in Phil. Med. Times, Vol. IV., p. 661.

168a. Castration.— The result of castration, of course, must be sterility; but the removal of a single organ does not interfere with the procreative ability of the man. How soon after castration the man loses his power is still an unsettled question, for the seminal vesicles retain, for a certain time, the spermatozoa that have been secreted before the castration.[49] The erectile faculty of eunuchs, if they have been castrated after the age of puberty, is retained for an indefinite number of years, but in itself, even when attended with sexual desire, is not indicative of procreative power. Nor is the ejaculation of a fluid having some of the sensible qualities of the semen sufficient evidence of such power. Unless a microscopical examination shows the presence of spermatozoa, which alone are characteristic of the fruitful semen, or unless pregnancy can be attributed unquestionably to the act, there can be no certainty that the secretion is more than the liquor prostaticus, or a mucous discharge. Instances of such proof of the procreative power after castration have been reported in several instances. Otto found the seminal vesicles still full of semen in a man who died nine months after he castrated himself.[50] One case is on record in which a man, both of whose testicles had been carried off by a gunshot wound, is said to have retained the power to impregnate his wife after the healing of the wound.[51]

168b. Obliteration of vas deferens.— A man may be sterile, also, when the testes are normal, if the vas deferens, which is the channel from the testes to the urethra, is blocked. Such an obstruction of the vas is probably the most frequent cause of sterility in men,[52] being the usual sequence of gonorrheal inflammation of the testicle and epididymis. It leaves but little trace by which it can be identified after the acute stage has passed, there being sometimes only a small nodule to be felt in the epididymis, sometimes nothing at all to be found. The

[49] Sturgis, in an article in the Medical News, New York, October 8th, 1898, Vol. LXXVIII., p. 449, cites a number of instances in animals in which intercourse immediately after castration has been productive. And two cases in men, where, after castration, the wives became pregnant. He also cites the case of Princeteau from the Ann. des Maladies des Organes Génit. Urin., 1890, where a man who had been castrated for tuberculosis of the testicles had frequent coition and ejaculations which, on microscopical examination, showed the presence of spermatozoa; but he does not say how long after the castration these specimens were obtained. Pelikan, in his Untersuchen über das Skopzenthum in Russland, 1876, p. 93, says that a man may be able to procreate for several weeks after castration, but only on the first attempt.

[50] Handbuch d. path. Anat. p. 344.

[51] Kriegelstein, in Henke's Zeitschrift, 1842, pp. 348 and 352.

[52] The sterility after a gonorrheal epididymitis may be only temporary. Gosselin reports two such cases where, after ten years of sterility, the wife bore a child, and spermatozoa were found in the husband's semen. (Quoted by Brouardel, Le Mariage, p. 123.)

man's organs appear perfectly sound, and yet there are no spermatozoa in the ejaculation, even on repeated examination. Winter—from the statistics of Kehrer, Lier and Ascrer, and Knorr—estimates that one third to one quarter of the cases of sterility of married life are due to the men. And certainly the largest part of these are due to disease of the vas.

Atrophy of the testes and nonproduction of a spermatozoa seem to be irremediable; and whether obstruction of the vas is to remain equally incurable remains to be seen. Recently operative attempts have been made to overcome this obstruction, and Dr. Martin reports one case[53] where a man whose semen had been devoid of spermatozoa for three years, by microscopical examination, became a father 297 days after the operation, having resumed marital relations sixteen days after the operation, and whose semen, eleven days after operation, contained a number of active spermatozoa.

169. Impotence.— In addition to these conditions of sterility in the man, there are a number of conditions which may make him impotent, though he may not be sterile. Hammond[54] classifies these causes of impotence as due to:

1. Absence of desire, which may be either congenital, in very rare cases, or acquired through mental preoccupation, masturbation, or sexual pervasion.

2. Absence of erections, from youthful excesses before puberty, obesity, extreme emaciation of disease, constitutional disease, such as nephritis, diabetes, cerebellar injury or tumor, and spinal cord disease. Also excessive horseback riding, morphinism, and chronic alcoholism, and the use of certain drugs, such as potassium nitrate and carbon bisulphid. The conditions mentioned in this class merely indicate possible or probable causes of impotency. The increase of the sexual desire in consumption is well known, even in the last stages. Hofmann cites the case of a man who had coitus the night before his death from tuberculosis; another case of coitus the night before death in the case of a man with syphilis of the liver and marked ascites; and another, on the fifth day of an acute lobar pneumonia. Caspar cites the case of a man seventy-two years old, married to a woman of thirty. For four years of married life they had no children. For the last six weeks before the husband's death he was severely ill. Three hundred and seventeen days after the death of the husband a child was born, and recognized as legitimate. In diabetes Furbin-

[53] N. Y. Med. Journ. and Phil. Med. Journ. 1903, Vol. LXXVIII., p. 697. Compare Goselin's remarks, note 52, *supra*.

[54] Hammond, Sexual Impotence, 1887.

ger[55] cites the case of a man who had coitus twice daily until near the time of his death. In locomotor ataxia the general rule, certainly, is for the man to be impotent; but Roose[56] says that he knew one case where the man had daily intercourse. And Furbinger cites the case of a man with paralysis of both legs who had two children after the paralysis.

3. Inability to copulate from special deformity of the penis or genitals, in elephantiasis of the scrotum, large scrotal hernia, scars in the penis, making erection incomplete, adhesions of the penis to the scrotum or to the abdominal wall, new growths of the penis, etc. But in this connection should be noted the fact that the stump of a penis, remaining after amputation, is sufficient for copulation; and hypospadias is no bar to intercourse or even to impregnation. Labalbary[57] reports the case of a man with hypospadias such that he had to sit down to urinate, who had two sons with the same deformity; and further, Trauber[58] and others have reported cases of pseudo-hermaphrodites of the hypospadias type, who have been educated as girls, and have impregnated their girl companions. In Trauber's case the infant had the same deformity as the father.

4. Absence of the feeling of the orgasm and therefore unsatisfactory intercourse.

Among the causes of impotence of the male should be included, also, those psychical elements which are scarcely explicable. Cases are on record in which, notwithstanding the existence of proper sexual feelings, and conformation on the part of the husband, he has been unable to complete the intercourse. Devergie[59] and Strecker[60] have reported such cases. In both, the husbands had the sensation and the knowledge of emission with other women. In one of these cases this circumstance was attributable to indifference on the part of the woman. Excessive sexual desire will sometimes defeat its own end; and, on the other hand, too great timidity or aversion may prove a cause of impotence. We need hardly add that such are often but temporary in their nature.

[55] Furbinger, Die Störungen der Geschlechtsfunctionen des Mannes, p. 85.

[56] Roose, in Witthaus and Becker's Medical Jurisprudence, Vol. II., p. 398.

[57] Labalbary, Vrtljschr. f. d. prakt. Heilkunde, 1864, Vol. LXXXII., p. 114.

[58] Trauber, Vrtljschr. f. d. prakt. Heilkunde, 1856, LII.

[59] Devergie, Méd. Légale, Nullité de Mariage.

[60] Strecker, Henke's Zeitschrift, 1840, III., p. 223.

CHAPTER III.

RAPE.

I. In general.

170. Definition.— From the medical point of view rape may be

considered as sexual intercourse of one person with another of the opposite sex, without her or his intelligent consent. In the majority of the cases the woman is the passive agent, and the indictment is brought against the man; but in rare instances the female is charged with the assault. The degree to which penetration must be carried, or whether it is necessary for the completion of the act to have taken place in order that the crime may be considered rape, varies according to the law of the state or country, and is considered in the sections on the legal aspect of the question. Similarly, the conditions which limit the value of the consent given or the absence of consent as in the case where the woman is under the influence of drugs, also are questions for legal decision, and are treated in the latter sections. However, they need a few medical comments.

II. Medical evidence of rape.

171. In general.—The medical evidence of rape consists in the evidence of the sexual intercourse, and also the evidence of violence necessary to overcome the resistance which the woman must make where she does not consent. Resistance less than the maximum which the woman is capable of offering is not consistent with dissent in the eyes of the law.

172. Evidence of violence.—The evidence that the intercourse has been attended with violence lies, to a large extent, in other than medical lines: in the previous history of the two persons concerned, the circumstances surrounding the case, etc. With these facts may be associated the evidence of injuries done to the man by the woman in her resistance, and the general injuries to the woman, inflicted by the man in overcoming her resistance. There is nothing characteristic of such bruises or wounds to mark them as distinctively different from any other bruises; the most that the medical man can say is that they have been inflicted at about the same time as that at which the plaintiff claims to have been ravished. The majority of writers on medical jurisprudence, among them Tidy, Taylor, Roose, Tardieu, Casper, Brouardel, Vibert and Hofmann, maintain that when there is no disproportion between the age and strength of the two persons concerned, and the woman is awake, well, and conscious, rape cannot be accomplished unless through threats against the woman's life. It must be remembered, however, that there are a few circumstances in which a woman can be placed, where, from confusion, surprise, and terror, she may be deprived of the command of her will and the power of resistance.

173. Possibility of rape on adult female.— The following cases seem to disprove the accuracy of the general opinion, and bear strong internal evidence of credibility. On the 22nd of March, 1849, a girl twenty years of age, unmarried, and of virtuous character, returning home from an errand to a neighboring village, was met in the pathway through a wood by a young soldier, twenty-two years of age, with whom she had previously a slight acquaintance. He asked her to let him accompany her a little way on the road, to which she consented. After having gone a short distance, the soldier proposed to her to go with him into the bushes. He made an effort to force her, but did not succeed. He kept his arm around her body, however, and seizing a favorable opportunity, suddenly raised her from the ground, and, with one hand confining her arms behind her back, threw her down, and with the other pulling up her clothes, prepared to effect his purpose. Upon her beseeching him to let her hands free, he did so, when she again made repeated efforts to get loose from him. He succeeded, however, in again securing her hands, and now lay with all his weight upon her, and endeavored with his knees to separate her limbs, but, with a last effort, she freed her hands and seized him by the privates. She would not let go until he promised to desist. He did so; when, as she attempted to rise, he caught her by the leg, and throwing her back, finally succeeded, by perseverance, in securing her hands and separating her limbs, after which he fully accomplished his purpose. All this was done without blows or any unnecessary violence. A witness who passed by after it was over, testified that he heard them quarrelling together, that the girl was crying, and the young man endeavoring to smooth her disordered dress. Upon her return home, she informed her mother, with many tears, of what had happened, upon which her father insisted upon her going to the parish priest, who lived about a mile distant, which journey she accomplished, though not without considerable pain and difficulty. Medical examination was had three days after the occurrence. The traces of a recently ruptured hymen were found, but other marks of violence were very trifling. There were no spots of blood upon her linen, but some traces bearing a resemblance to seminal spots were found. It further appeared that she was strong and healthy, and, it having been suggested to her that she had probably lost her breath in ascending the hill, and hence had been easily overpowered, she said no, she had entirely recovered her breath. The place was examined which she had indicated as the scene of the outrage, and evident marks of a struggle were found. The woman's statement was entirely unaf-

fected by the cross-examination, while the prisoner contradicted himself repeatedly during the trial. He was sentenced to five years' imprisonment.[1]

The following very analogous case is reported by Casper,[2] who pronounces it one of the most instructive he had ever met with, because it appears to show that a strong, healthy, and fully grown maiden may be violated by a single man. On the 16th of January the accused enticed the girl, who was twenty-five years of age, into the park near Berlin, and, having vainly endeavored, owing to her struggles, to accomplish his purpose by forcing her against a tree, he seized her by the body and threw her upon the ground, where, being deprived, as she alleged, of all power of resistance, he flung her clothes over her head, and consummated his purpose. Nine days afterwards Casper examined her. She was modest and maidenly in her behavior, and, without any affectation, appeared to be very sad on account of her misfortune. The orifice of the vagina was found to be inflamed, and painful when touched or dilated, the hymen was entirely lacerated, and the swollen caruncles were very red. The fourchette was uninjured. Without any prompting, and only after some general questions in regard to her condition and feelings, she stated that for the last few days she had suffered less than at first in passing water and in going to stool. From these facts it was concluded that the woman had been ravished. At the trial it appeared in evidence that the policeman, who had been attracted by cries to the spot, found the ground frozen hard, and that the accused, even after his arrest, was in a state of satyriasis. He was condemned to four years' imprisonment.

From these two cases we see that some cases, at least, have been accredited by the courts where not only has rape been possible on an adult woman by a single man, but that, too, leaving only slight traces of the violence to be found even when the examination was made within nine days after the crime; and frequently the examination of the woman does not take place until after a much longer interval.

174. Evidence of sexual intercourse, in general.— The evidence of sexual intercourse is also, in many cases, open to doubt. There are three points in which this evidence must be considered: (1) The anatomical changes in the genitals of the woman, produced by intercourse; (2) the presence of spermatozoa in or on the person of the woman; and (3) the presence of a venereal disease corresponding to that in the man by whom she claims to have been violated. In the man there is no evidence of his share in the crime except that result-

[1] Henke's Zeitschrift, Erg. Heft. 41, pp. 21–44

[2] Casper, Gericht. Med., II., 157.

ing from the violence used by the woman in her resistance, and the possible presence of the venereal disease.

175. Anatomical changes.—The anatomical changes in the genitals due to rape upon a virgin are usually distinct; on a married woman who has already indulged in coitus repeatedly, or may have had a childbirth, the evidences of recent coitus may be entirely wanting. In Witthaus and Becker's Medical Jurisprudence[3] an instance is cited of two married women who were assailed, and on whom the crime was completed in spite of resistance; and yet no marks of violence could be found. The genitals of the virgin show full, elastic labia majora, whose edges lie more or less in contact, covering the labia minora, a narrow vestibule, an intact hymen, and a narrow, folded vagina. The genitalia of the married woman show the effects of repeated dilatation in the separation of the labia, the tearing of the hymen, and possibly the obliteration of the rugæ in the vagina. Hence the difference of the evidence in the two conditions. If considerable violence has been used in the coitus, or if there has been great disproportion between the size of the organs in the two persons, there may be marked abrasions of the labia, vestibule, vagina, or even perineum. The indication which has been held as of the greatest value is the rupture of the hymen. This comes under consideration, of course, only where the female is represented as having been a virgin.

The other traces of sexual intercourse, such as turgescence and bruising of the parts, with heat and moisture, may, where opportunity for an early examination is given, be of some weight when taken in connection with other evidence. An interesting case of post-mortem examination, in which these signs were of value, may be found in Henke's Zeitschrift, Vol. XLVI., p. 41. The external genitals were found swollen and red, the clitoris in a state of partial erection, and the vagina turgescent and very moist. The mucous membrane of the uterus was highly injected, and the mouth of the womb open. In its cavity there was found a yellowish-white liquid of gelatinous consistence, and which, from its smell and other peculiarities by chemical reagents, was evidently semen. The dead body of the woman had been found lying near a public road, with the clothes thrown up over the face, exposing the lower parts of the body, and the thighs stretched widely apart. Other marks of violence were found upon the body, but the cause of death was forcible suffocation. This opinion, given by the official surgeon, was confirmed by the subsequent

[3] Witthaus and Becker, Vol. II., p. 437; Case of *Reg.* v. *Owen et al.*, Oxford Circ., 1839.

confession of the criminal, that, while violating the person of the deceased, he had endeavored to stifle her cries by forcing the clothes over her face.

176. Hymen may not be destroyed.— The presence of an intact hymen is popularly considered as the seal of virginity; but from the medico-legal point of view this estimation of its value must be modified to some extent. The hymen is not always destroyed by the first connection. This is proved by numerous instances[4] in which it has been preserved entire until the occurrence of parturition,—a fact which proves, also, that it is not an insuperable obstacle to impregnation. Maschka[5] refers to the case of a girl eighteen years of age, whose vagina was notably enlarged by coition, although the hymen was uninjured. This membrane was crescentic, thick, and fleshy, but as elastic as india rubber.

Dr. Roose[6] cites the case of a girl fifteen years of age who was examined April 9, 1894, the day succeeding the assault. The examining physician reported the presence of excessive secretion, an abrasion on the vulval canal, and a hymen of the annular variety that admitted the tip of the index finger, and appeared to have been recently inverted. He gave a certificate of "recent penetration by some blunt instrument;" the man pleaded guilty, and was sentenced before the court of general sessions, of New York. Another extremely interesting instance is reported in the same article where Duchatelet, an eminent French physician, confessed his inability to determine whether two women whose lives had been notoriously immoral, for years, were virtuous or not.[7] Still more surprising are the cases where, after abortions, or even after delivery at term, the hymen has been persistent. Steinhaus[8] reports such a case after a four months' abortion; and Aschenbach[9] has collected twenty-five, and Kanony[10] forty-three, cases of unruptured hymen after pregnancy and delivery; and Hab-

[4] See Kluge, Med. Preuss. Vereinzeitschr., 1835, No. 22; Ribke, Casper's Wochenshr., 1835, No. 2, S. 16; Strecker, Henke's Zeirschr. Bd. XXXIX., S. 218; *Ibid.*, Seildbach, *Ibid.* Bd. XL., p. 210; Schmittmüller, *Ibid.* Bd. XLI., S. 172; *Ibid.* 1843, Bd. II., p. 149; Möller, *Ibid.* Erg. Heft. No. 32, 1843; Canstatt's Jahresberichte für 1851; Scanton, Lancet, Mar. 8, 1851; Casper's Vierteljahrsch., 1855, p. 93; New Orleans Med. Gaz. 1858, pp. 217, 220; Amer. Jour. Med. Sci., 1860, p. 576; Braun, Vierteljahr. f. Ger. Med., 1873, N. F. Vol. 2, p. 197; and Glasgow Med. Jour., 1873 (Gray); and Brit. Med. Journ., 1878, p. 862. Also Montgomery, Signs of Pregnancy, etc., 2d ed., pp. 366 *et seq.*, where numerous other references will be found.

[5] Vrtljhrschr. f. d. prakt. Heilk. LXVI., 69.

[6] Witthaus and Becker, Vol. II., p. 429.

[7] Cited from Guy's Forensic Med., p. 49.

[8] Steinhaus, Wiener Medicinalhalle, 1862, III., No. 16. Quoted by Hofmann.

[9] Aschenbach, 25 Falle von Schwangerssehaft und Geburt bei undurchbohrten Hymen, Diss. In., Marburg, 1890.

[10] Kanony, De la Frequence des Cas de Persistence de l'Hymen et de Leur Importance en Médecine Légale. Thèse de Montpélier, 1899.

erda, the professor of legal medicine at Vienna, lately stated[11] that he was able to make the diagnosis of loss of virginity in only about 50 per cent of the medico-legal cases that he had examined in the last five years. He believes that in many instances it is impossible to determine whether coitus has taken place or not, unless the individual is seen immediately after the attempt has been made.

177. Intact hymen as evidence of virginity.— On the other hand, an intact hymen may be taken as evidence of virginity in some cases. Taylor quotes the case of *Reppingill* v. *Reppingill,*[12] in a suit for divorce, where the intact hymen was taken as proof that there had been no adultery. He also quotes the case of an assistant surgeon who, in 1845, was court-martialed for deliberate and false assertion of repeated connection with a certain woman. This was denied by the woman, who was about to be married. She was examined, and the hymen found intact, tense, semilunar, and not so tough but that it would have been easily ruptured. Therefore, the court ruled that the man was guilty of false assertion.

178. Hymen ruptured otherwise than by coitus.— The other side of the question must also be considered,—that the hymen may be ruptured by other means than through coitus. Congenital absence of the hymen,[13] if it occurs as an isolated defect, is extremely rare; rupture by masturbation is also very rare. Hofmann says[14] that he has seen many cases of masturbation in imbeciles, but never a rupture of the hymen. Destruction of the hymen by accident or disease must also be recognized. Siebold refers[15] to a case where a young girl who had climbed a tree to gather fruit fell down in such a manner that a stake, planted underneath, penetrated the vagina for an inch and a half, producing serious injury, and, of course, destroying the hymen. Taylor[16] describes a case of a girl of six who fell on a tree, one twig penetrating the vagina, and entering the abdominal cavity. The girl died twenty-four hours later, of peritonitis. Now, if the child had been found dead, it might have been difficult to assign an accidental cause to the death.

179. Variations in form of hymen.—Another point which must always be taken into consideration in the examination of a woman for evidences of sexual intercourse is the great variation in the form of

[11] Haberda, Ueber den anat. Beweis der erfolgten Defloration, Monatschr. f. Geb. Gyn. XI. 69–88, 1900.

[12] Taylor, Med. Jurisprudence, 12 Eng. ed. p. 705.

[13] Maschka, Handb. d. ger. Med., III., p. 91.

[14] Hofmann, Ger. Med. p. 119.

[15] Siebold, Handbuch, p. 102.

[16] Taylor, quoted by Peterson and Haines in their Med. Jurispr.

the hymen,—some of the rarer, fimbriated forms being easily mistaken for a ruptured hymen.

180. **Seminal stains.**— The evidence from the presence of seminal stains upon the person or clothing of the woman is one of the most reliable evidences of rape. It may not always be present, for all that constitutes the crime of rape, including penetration, may have been completed without the occurrence of seminal emission. Moreover, even the demonstration of semen does not prove the crime. Hofmann cites the case of a murder in which the suspicion of rape also fell upon the murderer. He, however, pleaded that no rape had been completed; and as the circumstances allowed the explanation of a previous coitus, the murderer was exonerated from the charge of rape. If a stain is found that is suspicious in appearance, the only proof of its character lies in the demonstration of the spermatozoa, and this is often difficult, on account of the dirt and filth with which these stains are frequently mixed. The chemical tests for semen are unsatisfactory; so that the stain must be identified by demonstrating the spermatozoa microscopically. This is possible in both the fresh and the dried specimens. The spermatozoa are seen to be flattened, piriform bodies 0.005 mm. long; from the large end is a tail, making the entire length of the spermatozoon from 0.033 to 0.050 mm. Hofmann says that from the dried specimens these bodies may be identified for years. Bayard has recognized them in spots as much as six years old. However, the absence of spermatozoa from a suspected spot does not prove that the spot is not of seminal origin.

The most valuable chemical test for semen is the Florence test. It has the same value in the test for semen that the guaiacum test has in determining blood. If the test is negative, there is no semen present; but if, on the other hand, the test is positive, semen may or may not be present. The test is really one for lecithin in a stage of decomposition rather than for semen, and so it will be positive in any condition where there is decomposition of a tissue containing lecithin. The test solution is composed of:

Potassium iodid,	gm. 1.65
Iodin,	gm. 2.54
Water,	gm. 30.00

A fragment of the stain to be tested is placed on a microscope slide, and to it is added a drop of distilled water. Let the stain soak for a minute or two, and then add a minute drop of the reagent, so that the two drops come into contact by their edges. Cover with a cover glass

and examine with a microscope, and small crystals like those of hemin in the blood test will be seen. It is a valuable preliminary test, and of value, too, in old stains.[16a]

Farnum has proposed a biological test for semen similar to that for blood. He injects semen or testicular emulsion into the peritoneal cavity of the rabbit, and, after the antibody has been produced, uses the rabbit's blood serum to form a precipitate with the semen stain. He has tried the test in several different species of animals, and finds the test to be eminently satisfactory, not causing a precipitate with the semen of other species, or with the blood of the same species. He finds the test to hold equally well in man. We can hope that the test will be corroborated and extended so as to take its place along side of the biological test for blood.[16b]

181. Venereal disease.— The presence of a venereal disease in the woman of the same nature as that in the man accused is certainly suspicious if the woman is known to have been free from any such disease up to the time when the act is said to have taken place; but the incubation period of the disease must also be allowed for. The presence of such a disease is not proof of sexual intercourse, for such diseases may be communicated in other ways, as is well recognized; but it is certainly very suspicious. However, the diagnosis of the disease must be made with considerable care, for the primary syphilitic sores may be simulated by a chancroid or even some nonvenereal ulcer; and secondary, or later, manifestations have not infrequently been diagnosticated when in truth, as later developments showed, the woman had some entirely different lesion, such as noma, diphtheritic ulceration, etc. Likewise the gonorrheal infection is not always one of clear diagnosis. The microscopical test of the secretion for gonococci is sufficient in most cases, but many recent authorities consider that there has been demonstrated (by Bockhardt, Naumberg, Lustgarten, Legrain, Oberlander, Ziessel, and Cowbry)[17] a pseudo-gonococcus in the healthy urethra. These pseudo-gonococci have the same biscuit shape, occur in the pus cells, and decolorize with Gram's iodin solution just like the true gonococci (the diplococci of Neisser), though their growth on culture media serves to differentiate them.[18] Hence, the usual demonstration of the gonococci by Gram's

[16a] See Florence, Du Sperma et des Taches de Sperme en Médecine légale, 1897; Also Richter, Der Microchemische Nachweis von Sperma, Wiener, klin. Wochenschr., June 17, 1897.

[16b] See J. C. Farnum, Biological Test for Semen, Journ. Amer. Med. Ass., Dec. 28, 1901, p. 1721.

[17] Cited by Hofmann, p. 132.

[18] Wertheim, Arch. f. Gynek. 1891, XL.; and 1892, XLII. Haberda, Gerichtartzliche Bemerkungen über der

differential staining must be taken as a legal proof of the existence of gonorrhea, only with a possible reservation for the pseudo-gonococci. As proof of the existence of chancroid in both parties Hofmann suggests,[19] that the Ducray-Unna streptobacillus may be looked for, even though it is not yet accepted by all as the cause of the chancroid.

182. Conclusions.— From the previous descriptions it will be seen how difficult is the proof of the charge of rape, and how its disproof is very rarely possible. Any general rules for the determination of all cases would seem inadvisable, and each case had best be judged on its own merits, according to the suggestions of Casper and of Storer.

III. Clinical aspect of rape.

183. Rape upon children in general.— Studied from the clinical point of view, the cases of rape may be divided into those on children and those on adults. Rape upon children is the more frequent form. Tardieu,[20] in 22,017 cases of rape, found 17,657 to be on children; and Casper and Liman,[21] in 408 cases, found 70 per cent in girls under twelve years of age, and 84 per cent in girls under fourteen years of age. Casper's and Maschka's[22] figures according to age are as follows:

Age.	Casper.	Maschka.
1–2 Years,	8	
3–6 Years,	64	19
7–10 Years,	161	37
11–12 Years,	59	60
13–14 Years,	60	55
Total,	352	171

This frequency may be accounted for by the ease with which a child's resistance can be overcome, and by the child's entire ignorance of the nature and consequences of the sexual act, and also to the prevalent superstition among the lower classes that connection with a pure virgin will cure a person affected with venereal disease; hence, for the sake of certainty, the youngest children are chosen for this crime.

184. Evidence of rape upon children; dilatation.— The evidences left after the attempt at sexual intercourse by an adult with a girl under the age of puberty vary somewhat with the age of the girl; but

Gonococcen in ihren Nachweis, Viertljhrschr. f. gericht. Med. 1894, VIII., Supplementheft p. 227.

[19] Hofmann, p. 134.

[20] Tardieu, Attentats aux Mœurs, 1878. p. 19.

[21] Casper-Liman, p. 115.

[22] Maschka, Handbuch, III., p. 102.

more still with the degree of violence and the frequency of its repetition. A full and complete connection between an adult male and a child under twelve years of age is, on the first attempt, manifestly impossible; repeated efforts, however, may produce such a dilatation of the parts as to render it finally possible. A case where the vagina of a child seven years of age became by degrees sufficiently dilated to admit the adult male organ completely is mentioned in Canstatt's Jahresbericht for 1851. But in the majority of cases the penetration is but partial, and in some cases the chief injury has been inflicted by the use of the finger. The truth of this statement is shown by the frequently uninjured condition of the hymen. In fifty-one cases of rape upon children, many of them under fourteen, complicated with syphilis, Casper found the hymen destroyed only seven times in those between nine and fourteen years, and twice slightly torn in children of nine and ten years of age. In all the remaining cases, *viz.*, four-fifths of the whole number, it was entirely uninjured.

185. Injuries.—The American reports seem to give a larger per cent of injuries. Roose, in a study of 200 cases of rape in children in New York city, taken from the reports of the examining physician's of the Society for the Prevention of Cruelty to Children, and an article by Walker,[23] found the vulva normal in half the cases, the fourchette destroyed in a somewhat larger proportion of the cases, and the hymen torn in 166 of 182 cases.

186. Marks of violence.—The usual marks of violence left after the attempt upon children are a swollen condition of the labia majora, together with an inflamed and painful state of the vaginal entrance, and a secretion from these parts of a muco-purulent discharge. There is also pain in urination and defecation.

This condition may be illustrated by a case where a child ten years of age was assaulted by a man aged thirty-eight; the following signs were found immediately afterwards. The nymphæ swollen, of a dark red color, and very painful, the hymen torn into three parts, the vaginal entrance free, but of a deep red color as far as the attachment of the hymen. The child was feverish and had pain during and after urination. Spots of blood were found on the under-garment. In the course of a week the hymen was healed, but not united, the swelling subsided, but there remained a muco-purulent discharge for about two weeks.[24] A yet fuller illustration is presented by the case of a child

[23] Walker, Arch. of Pediatrics, Vol. II., pp. 35, 36. Quoted in Witthaus and Becker.

[24] Keller. Casper's Vierteljrschr. Vte Band, 1 H., 1854.

under seven years of age, ravished by an adult. It is reported by Dr. McKinlay.[25] At the upper part of the cleft of the buttocks, behind and above the anus, the skin was besmeared with dried blood. The vagina was lacerated in various directions. One laceration extended down to the verge of the anus, laying bare the rectum, and others upwards and laterally. In the cavity produced by the laceration was some fecal matter which had escaped from the rectum through an opening an inch in length, and situated three-quarters of an inch from the verge of the anus. The child gradually recovered, in spite of these frightful injuries.

187. Venereal disease.— If gonorrhea or syphilis has been communicated, there may be, in addition to these marks of injury, a urethral discharge, chancres, condylomata, and, if sufficient time has elapsed, buboes and constitutional symptoms. We subjoin here a few cases, showing the appearances we may expect to find in children upon whom rape has been attempted.

X., a man of leisure, was accused of having repeatedly misused three sisters,—Agnes, aged 12, Clara, 11, and Antonia, 8. In all three the hymen was destroyed; in the two elder, the vaginal canal was uncommonly widened for their age, but not in the youngest. The opinion given was, therefore, that all three of the children had been deflowered, but that it was probable that the youngest had been masturbated with the finger. The evidence of the children, and some witness, gave all the details of this filthy transaction. Several more cases of an exactly similar character are given; we will, therefore, not repeat them. In the following case the whole proceeding was seen. Ottilia, agen ten years, still retained her hymen, although this was inflamed and relaxed. The vaginal entrance was dilated, irritated, and very sensitive. An old man of not less than sixty-five years had, it was said, often abused the child, having first enticed her by the present of a silver penny. On the last occasion, when he was discovered, the act took place in a barn, and a witness observed it through the chinks of the wall. The opinion of Dr. Casper, founded merely upon the condition of the child, was that a complete penetration had not taken place. A journeyman baker, affected with gonorrhea was accused of rape upon a child seven years of age, of healthy constitution. The child, examined one month afterwards, was found to have the hymen uninjured, but had gonorrhea, and the mucous membrane of

[25] Brit. and For. Med.-Chir. Rev., Oct. 1859, p. 535. A very similar case, p. 560. Colles, Med. Times and Gaz., June, 1860, which ended fatally, is reported by Mr.

the vaginal entrance in an inflamed condition. Hence the opinion was given that the condition of the child was due to an attempted, but not completed, coition by a man affected with gonorrhea. Eight other similar cases are given. Another instructive case is the following: The girl was fourteen years of age. The labia majora were relaxed and inelastic, and did not cover the vaginal entrance as they do in the virgin state. The orifice of the vagina was dilated, particularly in the lower portion. The opening of the hymen, which was itself not destroyed, was unusually large, and the vaginal mucous membrane very red and inflamed. The hymen and clitoris were swollen, and there was also gonorrhea. The defendant, a bookbinder, who was charged with having frequently had connection with the young girl, as well as others who visited his shop to buy writing materials, represented that he had merely used manipulations with his hand. Dr. Casper, in reply to the question put by the judge, stated that "it was improbable that the defendant had merely manipulated with the hand, since the dilation of the vagina was adverse to this opinion, and that masturbation merely could not induce so much inflammation, nor the urethral gonorrhea which was present. Hence it was to be presumed that the defendant had at least endeavored to introduce his organ into the vagina." A case happened in London, in 1858, and is related by Dr. Taylor,[26] of a girl of seven years, violated by a boy under seventeen years of age. There was complete destruction of the hymen, and slight laceration of the perineum, but no other marks of violation. Very profuse bleeding had saturated the girl's clothing, but no trace of blood was found on the boy's clothes or person; and it was inferred, therefore, that the bleeding was an after effect, and a result of oozing from small blood-vessels. Had not the proof of the crime been complete on other grounds, this circumstance would have rendered its commission by the accused improbable. Hascher[27] relates a sickening case of a child eight months of age, violated by a boy eighteen years old. Upon examination there were found redness, swelling, and great tenderness of the labia minora and parts in the neighborhood of the urethra, with rupture of the hymen, frenum, and perineum, together with laceration of the posterior wall of the vagina.

A case of genuine rape, with syphilitic infection, gave rise to an indictment against a journeyman hatter, who had abused his master's daughter in the most shameful manner. "The girl was only eight years of age, her private parts were very much dilated, and the mu-

[26] Taylor, Med. Jurispr., 6th ed., p. 697.

[27] Hascher, Oestr. Zeitschr., Vol. XXXII., p. 33.

cous membrane, particularly at the entrance, very red and painful to the touch. The hymen was destroyed, and she had a virulent gonorrhea." Dr. Casper gave his opinion, "that there was no room for doubt that an impure coition had taken place, and been really consummated." It was afterwards discovered that the accused was affected with gonorrhea. But on account of his obstinate denial of the charge, and his endeavor to escape conviction by assigning other reasons for the infection, the judge proposed the question, if the common use of an unclean chamber utensil could possibly be the means of conveying the gonorrheal disease. The answer was, that this was possible, but that such an origin of the disease could not properly be assumed in this case, on account of the destruction of the hymen, and the dilatation of the vaginal canal.

There can be no doubt of the occasional transmission of venereal disease by other means than sexual intercourse. Dr. Ryan[28] examined two children who were infected with gonorrhea by using a sponge belonging to a servant girl who had the disease. Mr. Hamilton[29] has published a case, in which a girl of six years of age was infected with syphilis by a boy of nineteen. The contagious matter was carried by the fingers. In Henke's Zeitschrift for 1850,[30] the details of a judicial examination of a somewhat similar case, where, also, the virus was conveyed by the finger, are given by Dr. Henrich, of Mayence.

To be distinguished from the venereal diseases of children, acquired by intercourse and indirect infection, are the cases of simple vulvo-vaginitis, which simulates gonorrhea, and hereditary spyhilis; and the two less closely simulating conditions,—herpes of the vulva and gangrenous vulvitis. In the minds of anxious relatives they may awaken suspicions of violence with intent to commit rape, and sometimes form the occasion for criminal prosecutions against innocent persons, for the sake of gain. The following descriptions are taken from L. Emmett Holt's Diseases of Infancy and Childhood, 2d ed., 1902.

187a. **Simple vulvo-vaginitis.**—Simple vulvo-vaginal catarrh may be seen at any age, even in infancy. It is, however, most frequent after the second year. It more often occurs in girls who are anemic or suffering from malnutrition than in those whose general health is good, being especially common in those who live in unhygienic surroundings, or where personal cleanliness is neglected. It may follow

[28] Ryan, Lond. Med. Gaz., Vol. XLVII., p. 744.

[29] Hamilton, Dublin Med. Press, Vol. XX., No. 511, p. 1848.

[30] Erg. Heft. 41.

any of the infectious diseases, especially measles. There seems to be little doubt that even this form may be spread by contagion. It is common in children in institutions where small epidemics are seen. It may be communicated by direct contact, or by handling the parts, or through clothing, diapers, sponges, towels, etc. The disease may be traumatic, as from attempted rape, or the introduction of foreign bodies. It may be secondary to the presence of pinworms, or the itch, and is sometimes the cause, sometimes the result, of masturbation.

"The disease generally begins as a subacute catarrhal inflammation, the discharge being the first thing noticed. In the milder cases this is thin and yellowish-white, giving some pain on walking, itching, and burning on urination. In the more severe form it is abundant, and of a yellowish-green color, causing the labia to adhere, and the secretion drying forms crusts. The odor is sometimes extremely fetid, and the skin of the thighs may be excoriated. The local examination shows the mucous membrane to be red, swollen, edematous, and bathed in pus. All the visible parts—urethra, hymen, vagina, etc.—are involved. By using an ordinary urethral speculum in the vagina, pus may be seen, in most of the severe cases, to come from the cervix uteri. There are no constitutional symptoms. There may be swelling and even suppuration of the glands in the groin. The disease has no definite course, but usually, with proper treatment, lasts from one to three weeks, when there may be complete recovery, or there may persist for a long time a leucorrheal discharge. In children who are in poor general condition, and where the proper means of treatment are neglected, vulvo-vaginitis may last for months."

187b. Gonorrheal vulvo-vaginitis.— Gonorrheal vulvo-vaginitis in young girls has been shown by recent studies of the micro-organisms in the discharge to be very much more frequent than was formerly suspected. While indirect infection is no doubt possible, and in certain cases proved, nearly all writers agree that this is very exceptional, and that the most common origin of the disease is the direct contact, either intentional or accidental, with another case of gonorrhea, sometimes sexual and sometimes with the hands. In this way the disease may be conveyed from one child to another, or from adults to children; very often from parents who occupy the same bed with the child. Pott states that in 90 per cent of his forty-four cases, the mothers were found to be suffering from leucorrhea. The mode of contagion may be difficult to trace, but this fact should cast no doubt upon the diagnosis in the case. The disease occurs in girls of all ages, but chiefly between three and eight years. Epstein has reported

cases in the newly born. The incubation in three cases in which it could be definitely traced was exactly three days (Cahen-Brach).

"The disease is believed to begin usually in the urethra, although this is, in most cases, difficult to establish, as there are generally found, on the first examination, evidences of inflammation of all the mucous membranes of this region. There is a copious secretion of thick yellow pus. There may be erosions of the vaginal mucous membrane, so that the parts bleed readily. Crusts form on the labia. When a view of the cervix can be obtained by means of a small speculum this is almost invariably seen to be involved. For the first day or two, in the more severe cases, there may be slight fever and general indisposition, but more frequently—and this is one of the most striking points of difference from the disease as seen in the adult—constitutional symptoms are entirely wanting. Urination is painful and sometimes frequent; there are also excoriation of the skin, and difficulty in walking,—all these symptoms being more severe than in the simple catarrh. The duration of these cases is indefinite, being from one to six months. Under the most favorable conditions it is several weeks, largely due to the difficulties in the way of a thorough application of local treatment. It is always more obstinate than a simple catarrh.

"A positive diagnosis between the simple and the gonorrheal catarrh can be made with certainty only by a microscopical examination of the discharge. It should be emphasized that the mere presence of a few diplococci, even though they be in the pus cells, is not sufficient to establish the diagnosis of gonorrhea, since there are varieties of diplococci found in the simple catarrh, and even in the normal vaginal secretion, which morphologically closely resemble the gonococcus of Neisser. It is the presence of these in large masses in the pus cells which is the characteristic feature. According to the very careful observation of Heiman and others, the two varieties of diplococci may be positively differentiated by staining with Gram's method. The gonococcus is decolorized, while the other form is not."

One of the possible complications of gonorrheal vulvo-vaginitis—the gonorrheal ophthalmia—is so characteristic that if it occurs it is very significant, and before the identification of the bacterial origin of the disease such evidence was considered proof of the disease. In the case referred to in Henke's Zeitschrift,[31] in 1850, about thirty years before the discovery of the gonococcus, the virulent character of the vaginal discharge was settled by the unmistakable gonorrheal oph-

[31] Erg. Heft. No. 41.

thalmia which the child brought on by touching her eyes with her soiled fingers.

187c. Hereditary syphilis.— Hereditary syphilis would scarcely be mistaken for that acquired by direct sexual infection, for in the hereditary cases, while the infant, in the majority of cases, appears healthy at birth, and does not develop syphilitic symptoms till the second to the sixth week, yet, when those symptoms appear, they are distinct from those of the acquired form. In the hereditary form there are no primary or secondary stages, but only the constitutional symptoms that show themselves most frequently in the coryza, eruption, fissures about the mouth and anus, mucous patches, and bone disease. On the other hand, in the acquired form in infants, the disease has the same primary sore and secondary eruption as in the adult.

187d. Herpes of the vulva.— "Herpes of the vulva is a simple vesicle formation on the skin or the mucous membrane. On the skin the vesicles rupture, or dry and form crusts or little ulcers, which heal in a week or ten days if the parts are kept protected. On the mucous membrane the vesicles are succeeded by small ulcers, which may coalesce and form larger ones. The symptoms are itching, burning, and a slight discharge. The herpetic ulcer may be confounded with the mucous patch of syphilis, but these herpetic ulcers heal quickly under the simplest treatment."

187e. Gangrenous vulvitis.— "Gangrenous vulvitis, or noma, usually follows one of the infectious diseases, most frequently measles, occurring in patients whose general vitality has been greatly reduced. The condition may follow a simple catarrh or a herpetic vaginitis. There is first noticed a tense, brawny induration, the skin being shiny and swollen over a circumscribed area. Day by day the gangrenous area advances, preceded by the induration. It may involve the whole labium, extending even to the mons veneris and the perineum. These cases are usually fatal. If recovery takes place it is with considerable deformity of the parts in consequence of the extreme sloughing and cicatrization." The discrimination between this condition and the results of an attempt at rape would not be at all difficult for the physician, though the parents or friends of the child might be misled so far as to attribute it to criminal violence.

Cases have arisen, however, in which both physicians and jurists found the distinction difficult, yet more from the circumstances of the patient suggesting the suspicion of violence than from the character of the disease itself. The earliest case is one often quoted from Per-

cival.[32] "A girl four years of age was admitted to the Manchester Infirmary, on account of a mortification in the female organs, attended with great soreness and general depression of strength. She had been in bed with a boy, and there was reason to suspect that he had taken criminal liberties with her. The mortification increased, and the child died. The boy, therefore, was apprehended, and tried at the Lancaster Assizes, but was acquitted on sufficient evidence that several instances of a similar disease had appeared near the same period of time, in which there was no possibility of injury or guilt."

The following more recent case presents very close analogies with the one just cited. In December, 1857, Amos Greenwood, aged twenty-two years, was tried at Liverpool for the murder of Mary Johnson, ten years of age. On a Thursday night the prisoner and deceased occupied the same bed in a room with other members of the family with which they resided, and then and there it was charged that the crime had been committed. The other inmates of the room heard no noise, and the girl made no complaint of suffering for three entire days, when her genitals were found to be sore and her thighs excoriated. On the fourth day she was seen by a surgeon, who pronounced her affection vaginitis. Becoming rapidly worse, her friends urged her to confess a criminal cause for her ailment, but she protested that she had nothing to divulge, until, being threatened that unless she did so she should be left to die, she declared that "her bedfellow had been upon her, and hurt her very much." Mercury was then administered to her by an unlicensed practitioner, when sloughing and mortification set in, and proceeded with great rapidity. A surgeon next saw the patient, and discontinued the use of the mercury. The mortification extended, however, to the pubes and nates, including the urethra, labia, and vagina to the depth of two inches, and the child died thirteen days after the alleged attempted intercourse, and ten days from the first discovery that she was diseased. Greenwood was then arrested, and found to have venereal warts on his penis, and syphilitic sores beneath the prepuce. He was tried, convicted of manslaughter, and sentenced to penal servitude for life.

In this case the only direct testimony implicating the prisoner was that of the girl, from whom it was extorted by threats, after she had repeatedly denied that he had had anything to do with her.[33] Evi-

[32] Medical Ethics, 1803, p. 103.

[33] "Frequently," says Casper, "have I heard very young but quick-witted children reveal, with the most perfect unconstraint, or even impudence, the whole course of the alleged affair and all its details in disgusting minuteness, so that it required but little penetration to perceive that they were merely rehearsing a lesson which had been taught

dently, if copulation was attempted, it must have been so without violence, and without the infliction of pain, for the occupants of the adjoining bed heard no noise, and for three days afterwards the girl made no complaint, nor was her appearance observed to be different from usual. Her subsequent condition cannot, therefore, be attributed to an attempted violation. Is it with more probability attributable to a syphilitic infection derived from the prisoner? The existence of syphilitic sores beneath his prepuce would render his attempting coition improbable. But, admitting that they might have been insufficient to restrain his lust, is the existence of a syphilitic infection proved by an examination of the child's genital organs? These were first seen by a medical man upon the fourth day, who deposed that the girl had vaginitis, with ulcerated spots all over, from the size of a pea downwards. These sores had no resemblance, in number or appearance, to syphilitic ulcers, but, on the contrary, presented all the characteristics of aphthæ. The state of the parts certainly did not suggest to the medical man in attendance either that the child had syphilis, or that she was the victim of an attempted rape. It was not until an unlicensed practitioner had administered mercury injudiciously that the symptoms which ended fatally were developed. Since, therefore, neither the nature nor the fatal issue of the child's disease could be distinctly traced to the prisoner, even on the supposition that there had been contact between the genital organs of the latter and those of the child, his conviction of manslaughter would seem to have been unjust. The person really guilty of the child's death was undoubtedly the unlicensed practitioner, who gave her mercury without judgment, immediately after which the fatal symptoms began to be developed.[34]

188. Rape on adult women.—Rape on the adult female of full vigor and in full possession of her will and ability to resist, we have seen, is not an easy matter to accomplish, but still it has been recognized by the courts.[35] The medical evidence of rape, if the woman be married, may be entirely wanting; and, as the crime is usually attempted without accomplices, the woman's statement is the main evidence against the man; but as cases of feigned rape are by no means rare, the evidence of the woman must always be taken with caution.

them; and it has seldom happened that the facts of the case did not confirm this belief."

[34] For the details of this case, and the discussion to which it gave rise, see Wilde, Dublin Quarterly Journ., Feb., 1859, p. 51, and Med. Times and Gaz., May, 1859, pp. 518, 544; Kesteven, *Ibid.*, April, 1859, pp. 361, 417, 442.

[35] See §§ 172 *et seq.*, *supra*.

[36] Taylor, Medical Jurisprudence, 6th ed., p. 708.

Dr. Taylor refers[36] to two cases where the crime was attempted with the aid of accomplices. In one it appears, that while an accomplice held the head of the female, with her face downwards, between his thighs, the prisoner had forcible intercourse with the woman from behind, her limbs having been first widely separated. In the second case an accomplice held the woman down on a bed by the neck, while the prisoner separated her thighs, and thus had intercourse with her. She was examined nine hours afterwards by an experienced surgeon, and he found no mark or trace of violence or injury on or anywhere near her pudendum. There were bruises on her arms, neck and legs, where she had been forcibly held down.

And in the *Bates Case,* cited by Dr. H. G. Storer,[37] in an elaborate study of rape, a strumpet was forcibly violated by four men in succession, against, or without, her consent. The defendants were convicted on the evidence of an eyewitness, and sentenced to five years' imprisonment.

189. Rape on old women.— Rape upon women of advanced age may be committed with comparative ease. Casper relates[38] the case of a woman sixty-eight years of age, decrepit and horribly pitted with smallpox, who was violated by a young fellow of twenty-seven.

190. Rape on the weak-minded.— Sexual connection with a woman who, on account of ignorance or weak-mindedness, offers little or no resistance, is also included as rape. A case in point may be found in Wharton's Criminal Law.[39] Here a girl allowed a medical man to have connection with her, under the belief that this was medical treatment. Dr. Fleischmann relates a case from his own practice.[40] He was consulted by the parents of a girl seventeen years of age. She had been brought up in a very secluded manner, and was both weak-minded and wholly inexperienced. Her monthly periods became suppressed and symptoms set in which awakened in his mind suspicions of pregnancy. The mother indignantly repelled this idea, but he continued his attendance. At last the violence of her pains compelled the girl to take to her bed, and presently she gave birth to a living child. In answer to her mother's inquiries, she declared with the greatest candor and simplicity that she had never slept with any man, and knew nothing more than that, a long while before, her cousin "N.," one Sunday when her parents were not at home, had played

[37] Storer, N. Y. Med. Journ., November, 1865.
[38] Casper, Gericht. Med., Vol. II., p. 26.
[39] Wharton, p. 439.
[40] Fleischmann, Henke's Zeitschrift, 1839, p. 294.

with her, and caressed her a great deal, and then she said, "er hat mir auf dem sofa recht schön gethan."[41]

191. Rape during unconsciousness; under the influence of drugs.— Where a woman has been wrought into a state of unconsciousness by intoxicating liquors or by narcotic drugs, and when she is prevented by these means from making resistance, there can be no doubt that her chastity can be violated. The cases are quite numerous which attest this.[42]

192. Under the influence of anesthetics.—Rape while the woman is under the influence of a general anesthetic is unquestionably possible, but gives rise to several very interesting questions.

193. Possibility of anesthetizing during sleep.— Is it possible to anesthetize persons during sleep so that they will not waken? So far as we know this has been attempted only with chloroform, for the irritative effects of ether and its compounds are too great for any such change to be effected; and nitrous oxid, which is the only other widely-used anesthetic, needs such cumbersome apparatus that it would scarcely be attempted outside of an operating room. With chloroform the attempt has been made several times in an experimental way. Dolbeau[43] attempted it on animals, but was never successful; he tried it on one person several times, but the patient always woke up. Later, he tried it again on twenty-nine sick people, and was successful in ten cases. Guerrieri[44] tried it on nine weak-minded people and was successful with six of the nine. But these attempts have all been made on people in abnormal conditions of health, and the chloroform has been administered with scientific skill; not as it would be done by the laity.

194. Testimony of person under anesthetic.— Second come the questions bearing on the value of the testimony of the patient under the anesthetic: (1), whether there can be consciousness without the ability to resist, and (2), whether erotic sensations caused by the anesthetic may be of sufficient vividness to deceive the patient, and make her believe things to have taken place when they are pure imaginings of the brain under abnormal conditions. Taylor[45] cites the case of a dentist, in France, where the woman, under ether, was considered as not yet unconscious, but totally incapable of offering any resistance.

[41] This remark might be translated somewhat freely as, "He put me on the sofa and treated me beautifully."

[42] See Legal Relations of Rape.

[43] Dolbeau, Ann. d'Hyg. Pub., Jan., 1874, LXI.

[44] Guerrieri, Virchow's Jahresberichte, 1895, 1,440.

[45] Taylor, Med. Jurispr., 12th Eng. ed., 1891, p. 711, refers to Lond. Med. Gaz. Vol. XL., p. 865.

A full account is given of the following case, from the importance of the questions to which it has given rise. The history is extracted chiefly from Dr. Hartshorne's vindication:[46]

A young lady of unimpeachable character, who has, for some time, been engaged to be married, is accompanied by her betrothed to the house of an eminent and highly respectable dentist, who had been engaged to plug one of her teeth. They arrive about ten o'clock on a Friday morning. She enters the house, and after a few minutes spent in awaiting the exit of two other ladies, she is ushered into the operating room, or office. Here we will allow her to continue the narration in her own words:

" 'I went into the office, took off my bonnet, and Dr. B. went to the washstand to wash his hands, and asked me after the family; I took a seat on the operating chair; in a few minutes Dr. B. told me one of the men wanted to speak to him, and he gave me a book to read and left the room; did not say what man; I supposed there were men there; he has a room in which the teeth are made; I believe those to be the men; Dr. B.——'s family were out of town at that time; he said so, and the door was opened, and there was no furniture in the front room; I don't know how long Dr. B—— was absent; when he came back I was sitting in the operating chair; he went to the instrument case, and began with my tooth; the tooth was on the left side; he commenced operating on the tooth before he gave me ether; the operation was very painful; he said he would either put something in to destroy the nerve or give me ether, leaving the choice to me; I told him I'd prefer taking ether; I didn't learn what he proposed putting into the tooth; he gave me the ether on a small napkin, folded up; I felt very dizzy at first; I was cold and felt very numb; it increased upon me; I did not lose my consciousness of what was doing; I continued to breathe the ether; my eyes were closed; I closed them voluntarily; I did not try to open them for some time after; after he gave me the ether he did not, as I remember, operate on my tooth; he felt my pulse several times; put his hand on my arm under my sleeve, up my arm; I had a loose sleeve; he did it once; he put his hand on my breast under my dress; on the bosom; he put his hand on my person, under my dress; I have a distinct memory of that; I was not able to make any resistance or outcry; he went round before me and raised my clothes; I am perfectly distinct in my memory of that; I did not try to cry out; do not know if I was able; after he had raised my

[46] The history of this case, and the remarks on the physical effects of ether inhalation, which follow, are published in the Phila. Med. Exam., Dec., 1854.

clothes, my feet were crossed, and he raised them and put one on each side of the stool; he then put his arm around me under my clothes; he drew me down to the edge of the chair; I do not know what he did after that till I felt pain; he did enter my person; it was then that I felt the pain; I was not able to cry out or resist; I did not try; I don't know what was his position; my eyes were closed; I have no doubt that he did enter my person, and did give me pain; all this time I was conscious of everything that was going on; after this he left me and crossed the room to the washstand; I heard him pour out water into the basin; after he had been to the washstand and returned, I opened my eyes, and saw my clothes up; he did not see me; I have a clear recollection of seeing my clothes up; I closed my eyes immediately; he put down my clothes, and in a few minutes he was at the side of the chair, and lifted me up into the seat; I was just to the edge of the seat; it was a large dentist chair; in a few minutes he told me he'd have to take the tooth out; that was the first remark he made, except the first, when he asked me if I was getting sleepy; at the time he entered my person I did not feel his person against me; pain I distinctly felt; when he spoke about taking out the tooth, I asked him why; he said they were both decayed, and he could not save them both; I told him I was afraid it would pain me, and he said he would not let it; he then gave me more ether, and extracted the tooth; it was on the left side; when he extracted the tooth it was painful; I screamed then; he then assisted me to rise, and led me to the rocking-chair; I felt a little dizzy when he led me to the rocking chair; he then went out of the room, and in a few minutes came up with a lady; I have not seen her since; he asked me if I would be introduced to her; I believe I said no; he did not introduce me then; I heard him tell the lady he'd always been our dentist, and that we never had been to any other; he said my teeth were very good; he said I had taken ether when the tooth was extracted; I think she said something about hearing me scream; he said yes, ether had not much effect on me, I was either nervous or for some cause; in a little while I got up, and he introduced me to the lady; I think it was Mrs. P——; I made several remarks, but I don't know what they were; I then put on my bonnet, and Dr. B—— followed me down stairs; the lady was left up stairs; he came to the door, and I wanted to stop an omnibus; he asked me how far I was going, and I told him to Third street and Lombard; he told me I had better walk; he said he thought that I had some of the ether in me, and the walking would do me good; I walked down Walnut to Sixth, and did not get into an omnibus; I

did not reproach Dr. B—— at the house; I was afraid; I stopped in C——'s ice cream saloon, at Sixth below Prune; I got ice cream; I went then along Sixth street to Spruce, and down to Third and Lombard street; I was going to see a young woman that sent for me; I did see her; don't recollect how long I was there; when I left I came up to Mr. T——'s at Chestnut street, near Fifth; I was very intimate with Mr. and Mrs. T——; I met Mr. M—— on the way up, near Sixth and Chestnut street; he joined me and spoke to me; did not accompany me to Mr. T——'s; did not meet any but those I have named; I reached Mrs. T——'s at one o'clock; they had not been to dinner; I first mentioned to Mrs. T—— what had occurred at Dr. B——'s, the same day after tea; that afternoon I was taken unwell; it was the usual time; the door of the dentistry room at Dr. B——'s was shut; there are two doors in the room; the one leading to the entry door was closed; Dr. B—— said that he closed the door because the smell of ether would go over the house; the door was shut before he gave me the ether; the chair is one that leans backwards.'

"*Cross-examined.*—'Dr. B—— was the dentist of our family; don't remember the number of years; it was from the time of my early youth; he attended all the members of the family so far as they required it; I went to him with the approval of my parents; he generally behaved like a gentleman; I did not know his family; don't know how many years I have been his patient; when I called with Miss Thr—— it was to get my tooth plugged; on several times before I had taken ether; I requested it to be given; I don't remember of his persuading me from it; the tooth was not plugged when I was there with Miss Thr——; the following Thursday was appointed for future operation; I did not go on Thursday; Mr. Thr—— had the appointment made; I believe it was on Wednesday morning; I received a letter from him to that effect; I requested him to go in with me; he was there when the woman came to the door; I was shown into the front parlor; it was the usual place; it was but a few minutes before the ladies came down; Mr. B—— came down before; he said he had several young ladies up stairs and would be down in a few minutes; I went into the usual operating room up stairs; the door opening into the front room was opened at the time; it was the back room of the main building I was in; the workshop is in the second story back building; don't know how far from the room in which I was; it is not upon the same level; it is lower; I don't know if I could see into the windows of the workshop from the window of the room in which I sat; when Mr. B—— went to see the workmen he gave me one of the

monthly magazines; while I was in the room nobody came to the door that I saw or heard; don't know of the doctor leaving that room; did not see any women there except Mrs. P—— and the Misses H——; the windows were closed in the room, *i. e.*, the sashes were down; no change was made in their condition while I was there; don't remember any one calling as a sitter while I was there, and Dr. B——'s speaking of it; I did not know of Mrs. P——'s being in that house before she was brought up stairs; I don't remember speaking to Dr. B—— of the fan and requesting him to give me ether; from the time I closed my eyes after the ether had been taken, I did not open them until after the liberties had been taken; I did not open my eyes until he returned from the washstand; what I have described is from what I have heard and did not see; I did not see any part of his person exposed, nor the application of any part of his person to me; don't know, except from the pain, what part of his person was applied to me; he passed his hand up my arm immediately after he had felt my pulse; after the ether was administered a second time no liberties were taken; I judge that he did not see me when I opened my eyes, because he was not in front of me; when he told me he would have to pull the tooth, I asked him why; the reason why I agreed to take the ether a second time was, because I was afraid; I was not afraid to have my tooth taken out, or to be operated upon further; I don't know if either of my teeth were prepared for plugging; I suppose he touched the tooth he took out; that gave me pain; I told him I'd had the toothache; another appointment was made for Monday at two o'clock; I asked him when I was to come again to have them finished, and he said at that time; I asked him that when I was going and had my things on; he booked it at my instance; I don't know if it was before Mrs. P. came in or not; Dr. B—— did not say there was a sitter waiting for the chair; I did not see any one call to inform him of a sitter; I never notice such small things as that; don't know how long after he had finished the tooth that he went down for Mrs. P——; I did not remain more than five minutes; Mrs. P—— said she came from the country and came to have her teeth attended to; Dr. B—— followed me down stairs; that is his custom, not only with me but with other ladies; when at the door I did not manifest any displeasure with him; I told the doctor I wanted an omnibus; I believe I bid him good-bye; soon after I got out of the door of the second story, I told him to say good-bye to Mrs. P—— for me, as I had forgotten it; the chair I sat in was the one I had always used; there was but one operating chair in the room; Dr. B—— asked me

if I ever rode on horseback; I said yes, sometimes; he said, "Ride over and see us;" I replied, "Perhaps I will;" that was up stairs; on the way down to C——'s I did not meet any one I knew; I did not meet any one on my way to Third and Lombard street; I told Dr. B—— I was going on an errand to Third and Lombard streets; it was an errand for my sister in respect to some articles of dress; I did not speak to her of the treatment I received; did not sit down very long; when I left Dr. B——'s I think it was a few minutes before or after twelve o'clock; I don't remember which; I don't know how long I was at C——'s; not long; reached Mrs. T——'s a little after one o'clock; Mr. McK——, whom I met, asked after the family; I did not tell him where I had been; he only walked with me a short distance; I did not complain of any pain to Dr. B——, except the pain of my teeth; I don't remember how long the first application of the ether lasted; after I took it I felt no pain in my teeth; cannot describe the effect of the ether, except that it made me dizzy; I did not see the doctor at all during the operation of the first ether; I felt his breath as well as felt pain; the pain did not continue long; I had no other indication of the approach of my monthly discharge but that day; it occurred in the evening; I did not examine my person in the interval; nobody examined it between those times; I did not examine my garments; my mother did on Sunday afternoon; nobody before; those garments don't remain now as they did then; they are washed; I don't know when; I made the communication to Mrs. T—— after tea on Friday evening; I told Mrs. T—— before I became unwell; I gave evidence before the Mayor; don't know if the garment was washed before that; it was not washed till I went out home; during the time I was at Mrs. T——'s till I was taken unwell, no physician was sent for; I was never examined by a physician; on the afternoon of Friday I was out riding with Mr. and Mrs. T——; we set out about six; I do not know where we went; somewhere on the plank road; it was some time after I returned that I felt unwell; spoke to Mrs. T—— on the subject after tea; we had tea as soon as we came home from riding; Mrs. T—— told Mr. T——, and Mr. Thr—— asked me a single question about it; I answered it; and that was all I said; it was before I felt unwell that I told Mr. Thr—— about it; he remained as long as I did, and went to my grandmother's with me; on the next day I went out to the depot, but did not go to my father's; Mr. Thr—— accompanied me to the depot; I met Mr. and Mrs. T—— out there; I did not see my father or mother; I saw my father on Monday morning in Fifth street; at the time he left to go down

stairs, I did not see if he opened the door or not; I was sitting with my back to the door; I don't know why I refused to be introduced to the lady when he first asked me the question; my father and Mr. Thr—— accompanied me to the Mayor; Mr. and Mrs. T—— and my two uncles were there; my father was there before I was.'

"*Re-examined.*—'I said that Dr. B—— generally used me like a gentleman; he said a year ago that he should like me for his second wife; he had a good many children, but they should not trouble me, as he would get nurses for them; I spoke of it at home to my mother and sisters; after the doctor took me out of the chair after the operation, all that I said was in answer to questions by him, or to remarks; the reason why I did make another appointment with him (Dr. B——) was that I did not want him to know that I knew anything of his conduct; I had not concluded what course to pursue.' "

We leave the comments upon the legal proof of penetration or of rape in this case to our colleague; the question as to the capability of evidence on the part of a female, relative to what has occurred during the period of etherization, and the possibility of resistance under such circumstances, may, we hope, receive an answer in the subjoined remarks:

There is a striking analogy between the effects of ether and those of alcohol; the chief difference between them being in the more rapid and complete insensibility produced by the former, and in the more evanescent character of the intoxication. There is a period of excitement, of stupor, and of recovery, and the phenomena observed in different individuals vary according to their temperament and habits. In general, the state of excitement in etherized patients is short, and verges rapidly into that of unconsciousness and insensibility to pain. The vapors of ether seem literally to ascend and diffuse themselves through the brain, and to permeate every portion of the body; the patient has a sense of fullness and warmth; the whole body feels lighter, and seems to spurn the earth; the sense of hearing becomes confused, the sight dim, and the touch benumbed. External objects lose themselves in a confused mist, which appears to swell their proportions and contort their shape; the muscles become relaxed, and the patient sinks, lethargic and unconscious, into a profound sleep.

During the transition into a stage of entire insensibility, he responds to external impressions only in an automatic manner; the most painful incisions, if felt at all, seem to him like the marking out of lines upon the skin; and the extraction of deep-seated tumors like the crackling of hair between the fingers. All his movements are in-

stinctive; an expression of suffering is often depicted upon the face; the hands are raised against the operator as he attempts to draw a tooth, and, when spoken to, he answers in a vague and dreamy manner. The recovery from this condition, or from a more advanced stage, is apparently sudden, but, as in the waking from profound natural sleep, the perceptions are, for a few moments, confused, even while the person thinks himself fully awake, and appears to be so.

Dr. Forbes has well described the psychical state under the influence of ether. "Generally speaking," he says, "the sense of external impressions becomes at first confused, then dull, then false, with optical spectra or auditory illusions, general mental confusion, and then a state of dreaming or utter oblivion. In the majority of cases, the mind is busy in dreaming, the dreams being generally of an active kind, often agreeable, sometimes the reverse, occasionally most singular, and frequently a great deal is transacted in the few short moments of this singular trance. Many of the patients who have undergone the most dreadful operations, such as amputation of one or both thighs or arms, extraction of stone, excision of bones, extirpation of the mamma, have readily detailed to us, and most with wondering thankfulness, the dreams with which, and with which alone, they were occupied during the operations. The character of the dreams seemed to be influenced, as in ordinary cases, by various causes, immediate or remote, present or past, relating to events or flowing from temperament. . . . . A good many seemed to fancy themselves on the railway, amid its whirl and noise and smoke; some young men were hunting, others riding on coaches; the boys were happy at their sports, in the open field or the filthy lane; the worn Londoner was in his old haunts carousing with his fellows; and our merry friend, Paddy, of the London Hospital, was again at his fair, wielding his shillalah in defense of his friends. Others of milder mood, and especially some of the women patients from the country, felt themselves suddenly transported from the great city and crowded hospital-ward, to their old quiet home in the distant village, happy once more with their mothers and brothers and sisters. As with the dying gladiator of the poet, the thoughts of these poor people—

'Were with their heart, and that was far away.'

Some seemed transported to a less definite, but still happy region, which they vaguely indicated by saying they were in heaven; while others had still odder and warmer visions which need not be particu-

larized."[47] It is with this psychical condition that we now have chiefly to do.

What, then, is the influence of the inhalation of ether upon the perceptions? It undoubtedly cuts off, more or less quickly, the life of relation, and severs us from the external world. The lapse into unconsciousness is gradual but rapid, and does not admit of division into distinct intervals. The sensation of pain is often lost before outward consciousness has become totally obscured. Indeed, instances are related in which the patient has himself looked on as a calm spectator of the painless mutilation of his body. A patient of Prof. Pitha, being put under the influence of chloroform, at once fancied himself in his beloved Italy, and gave full vent to his expressions of delight; he raised himself up during the operation for the liberation of a hernia, and watched it with great interest—answering to the question whether he felt any pain, *"Si, io sento l'incisione, ma non sento dolori."*[48] Such cases are rare, and it is important that we should not be misled by this apparent outward consciousness. In the instance just cited, the perception was by no means unperverted; since, although the patient replied correctly when questioned, he imagined himself in a distant country. During an extremely painful operation performed by Velpeau upon a young girl, she raised herself into a sitting position as if to observe it. She said afterwards that she supposed herself seated at a dinner table.[49] In the greater number of cases, however, the perceptions are greatly perverted,—illusions being sometimes suggested by the scene actually passing, and at others arising without being prompted by the external perceptions. Some cases, illustrating this fact, we quote from the interesting work of Dr. Flagg.[50]

After an operation performed on the forehead of Mr. T——, a dentist of this city, he said, that although his eyes were shut, he saw every cut of the knife. "He saw the shape of the wound upon the forehead; and, what was better than all, this cutting appeared to him to be done upon somebody else." A lady dreamed that she was at Cape May, and was going into the surf, and that while in the water she was attacked by a shark, which held her fast, but without pain, until the company present extracted his teeth and liberated her. A little girl, the extraction of whose tooth made a report like the draw-

[47] Brit. and For. Med. Chir. Review, April, 1843.

[48] Vrtljschr. f. d. prakt. Heilk. 1848, 3 Bd.

[49] Rev. Méd., 1847.

[50] Ether and Chloroform, etc. by J. F. B. Flagg, M. D., Surgeon, Dentist, etc. Philadelphia, Lindsay and Blakiston, 1851.

ing of a cork, sprang out of the chair, "crouched upon the floor, and looked up anxiously at me and inquired if anybody was killed." She supposed she was travelling upon a locomotive engine, which had been blown up, and had thrown her into the air. A boy fancied himself in a cotton-mill; an Irish woman dreamed that she had been home, and seen her friends engaged in spinning; and others dreamed that they were in railway cars or shipwrecked; the dream in some cases being suggested intentionally by the dentist, or being due to accidental noises. A countless number of cases might be adduced to show that patients under the influence of ether have been completely ignorant of all that passed around them while in this condition, and have been surprised to find, upon their recovery, that they have undergone the most severe surgical operations. But this fact is too familiar to need illustration. It is only important to observe that during this state of utter oblivion the mind is often busily engaged upon its own inward perceptions, which may or may not be pertinent to the actual position of the patient. These perceptions shape themselves into dreams entirely similar to those of natural sleep, being grotesque and improbable, cheerful or painful, according to the temperament, occupation, and habitual mode of thought of the individual.

One of the most extraordinary effects of the inhalation of ether is its effects upon the emotions. Thus some persons are seized with the most irrepressible mirth, while others seem to sink under the weight of despondency. Women are especially liable to these effects. Hysterical paroxysms are by no means a rare accompaniment of ether inhalation. In others the erotic propensities are strangely excited. Siebold relates the case of a woman whom he rendered insensible by ether. Upon regaining her consciousness she appeared to be in a highly excited state, and was loud in her praises of the delightful condition in which she had been; her eyes sparkled, and a certain erotic excitation was very observable.[51] Pitha observed excitement of the sexual feelings in two cases, one of a woman and the other of a man, upon whom he operated.[52] "In one of these cases, observed by M. Dubois, the woman drew an attendant towards her to kiss, as she was lapsing into insensibility, and this woman afterwards confessed to dreaming of coitus with her husband while she lay etherized. In ungravid women, rendered insensible for the performance of surgi-

[51] Ueber die Anwendung der Schwefel-Äther-Dämpfe in der Geburtshülfe, Göttingen, 1847.

[52] Vrtljschr. f. d. prakt. Heilk. 1847, Bd. 3.

cal operations, erotic gesticulations have occasionally been observed; and in one case, in which enlarged nymphæ were removed, the woman went unconsciously through the movements attendant on the sexual orgasm, in the presence of numerous bystanders.[53] We doubt not that other cases might be brought forward to illustrate this fact, but the paucity of published reports of such a nature will be readily attributed to the natural unwillingness of patients to disclose painful illusions of this kind, and of physicians to make them known. In further illustration of the disordered condition of the mind under the influence of ether, the following case may be cited. A female rendered insensible by ether, after some unintelligible phrases, related some most circumstantial details of her private life. This involuntary confidence, which might have been followed by serious consequences had it taken place anywhere but in a hospital, was discovered afterwards to have been perfectly true.[54]

In the above observations it may very plainly be seen that the will no longer exercises its control over the mental operations. The thoughts run headlong upon their accustomed track, or in any direction in which they may have been impelled by fortuitous impressions made upon the nerves of general or special sensation. There is no power to restrain them, and, while the dream is a pleasant one, no desire to do so. Often, however, the illusions are painful or disagreeable, and in such cases the individual may make an effort to escape from or to repel them. Movements under these circumstances, therefore, imply an exercise of the will. This resistance is almost always to illusions proceeding from external impressions. We have already referred to the frequent occurrence of instinctive struggles against the hand of the operator, while the impression, as afterwards related, has been upon the mind of the patient that he was playing a part in some very different scene. Thus the little girl whose case is before referred to, and who fancied, when her tooth was drawn, that she was blown from a locomotive, sprang from her chair upon the floor while still unconscious.

Another young lady, mentioned by Dr. Flagg, when the forceps was placed upon the tooth, cried out, "Stop pulling! stop pulling!" The tooth was nevertheless extracted. "She rose from the chair in much excitement, and would have fallen to the floor, but I caught and sustained her for a moment, when the ether instantly passed off."

[53] A Lecture on the Utility and Safety of the Inhalation of Ether in Obstetric Practice, by W. Tyler Smith, M. D., Lancet, March 27, 1841; also in Bulletin de l'Académie, XII., 406.

[54] Ann. Médico-Psycholog., Vol. XII., p. 376.

This young lady dreamed that she was in danger of shipwreck, and, seeing the rocks and breakers ahead, cried out to the man at the wheel, with all her strength, to "stop pulling." In another instance, a lady, while under the influence of ether, resisted the attempt to extract her tooth. She got up from the chair, seeming much offended, and took her seat in another part of the room. When the effect of the ether passed off, which was in about a minute, she was much astonished at finding herself so remote from the position she occupied when she fell asleep.[55]

The following singular instance may be appropriate in this place. A young man having been sufficiently etherized, the dentist prepared to extract a tooth. In a moment he dashed the instrument from his mouth, left the chair, and striding about the room, demanded what they meant to do with him. In a few moments the effect of the ether passed off. Being again put under its influence the same scene was enacted, with even greater violence, and he endeavored to jump out of the window. When he regained his memory, he related that he imagined himself surrounded by a great number of enemies, one of whom endeavored to drive a nail into his mouth, and, being unable to struggle with them, he had sought safety in flight.[56]

M. Gerdy, in trying the effect of ether upon himself, with the object of observing closely its successive phenomena, found that, with the exception of the vibratory and benumbed sensation which rendered the sense of touch and of pain obtuse, and the noise in the ears which dulled the sense of hearing, his intelligence was clear, his attention active, and his will so firm that he willed to walk, and he did walk, in order to observe the effect upon his locomotion. He found that his step was only less sure than usual, and was similar to the gait of an intoxicated person.[57]

We have cited these examples, out of many of a similar nature, for the purpose of showing that the power of the will over muscular movement is not entirely abolished in etherization. It is true that the muscles are speedily relaxed but they are not paralyzed. The patient may exercise his will, or he may not; if he does, it is to escape from danger, real or imaginary, but which has always to him the form of reality. If he does not make any movement, the fact is due either to the pleasurable or trivial character of his mental perceptions, or to the temporary but complete unconsciousness and insensibility in which he is plunged. That advanced stage of etheriza-

[55] Flagg, p. 102.
[56] Union Méd., Sept. 1857.
[57] Bulletin de l'Académie, XII., 304.

tion in which perfect narcotism is produced is, in reference to the present question, of considerable importance; for, if the power of resistance is then lost, so also is the consciousness of a real motive for it. To be more explicit, if an outrage be perpetrated upon a woman lying wholly helpless and unconscious, she cannot be aware of the liberties which are being taken with her person, and will not, therefore, make any opposition to them. She cannot, moreover, afterwards describe, with elaborate detail, the manner and particulars of the assault, and yet have been incapable of withdrawing from or repelling it. If her muscles and voice have been paralyzed, so also has her outward consciousness.

The recollection of what has passed during this stage of etherization is wholly confined to the inward mental perceptions,—to dreams which have all vividness of real occurrences. In the language of Dr. Forbes, "the old story of the magician in the Arabian tales seems more than realized; the ether being like the tub of water, one moment's dip of the head into it produced a life-long vision in the dreamer's mind." It is possible that these dreams may be so vividly impressed upon the mind that they may have afterwards to the patient all the force of real occurrences, and that he may refuse to believe that they have been merely the disordered perceptions of his own brain. In general, these dreams being of a trivial or of a pleasing character, it is not surprising that the patient should acquiesce in the belief of their unreal nature, but the case is very readily conceivable in which the hallucination may have been so distinct, and, at the same time, of so repulsive a character, as to leave an indelible impression upon the mind, and a conviction of its reality. Authentic published evidence of this fact is indeed wanting, and we purposely forbear, for reasons which cannot fail to be apparent to our readers, to refer to that which was said to have been offered in the recent trial, as well as to that which we possess from private sources.

The following cautious remarks of M. Bayard are not without significance; "If," he says, "in some cases, individuals have rendered an exact report of what has passed around them, or of the liberties which have been taken with them while under the influence of ether and chloroform, it must not be forgotten that very frequently they have dreams, hallucinations, and illusions which they relate with a conviction of their actual reality. Experts should therefore receive with extreme circumspection declarations made before them under these circumstances, and both in their written reports and verbal depositions, should endeavor to enlighten magistrates and jury upon

the relative value and credibility of such revelations."[58] It appears to us, from what has now been stated, that the following positions may be assumed as correct:

1st. That the consciousness or perception of external objects and impressions is impaired in the early, and lost in the final, stage of etherization.

2d. That during the time the mind remains susceptible to external impressions at all, these reach it in a feeble or perverted manner.

3d. That the emotions, and especially those of an erotic character, are excited by the inhalation of ether.

4th. That voluntary muscular movement is not paralyzed until the state of perfect narcotism is produced, at which time, however, all outward consciousness is extinct.

5th. That the memory of what has passed during the state of etherization is either of events wholly unreal, or of real occurrences perverted from their actual nature.

6th. That there is reason to believe that the impressions left by the dreams occasioned by ether may remain permanently fixed in the memory, with all the vividness of real events.[59]

A case closely resembling that of Dr. B., occurred at Montreal in 1858.[60] A dentist was indicted for attempting to commit a rape upon one of his patients, under the influence of chloroform. At the trial, a witness testified that his wife was under the strongest impression that she had been violated by the prisoner while under the influence of chloroform; yet her husband was present during the whole time she was unconscious. The verdict of the jury was "guilty of an attempt to commit a rape, with a recommendation to mercy."[61]

[58] Appréciation Médico-légale de l'Action de l'Ether et du Chloroforme. Ann. d'Hygiène, XIII., 201.

[59] There has been much evidence published, given at meetings of the dentists in New York and Baltimore, which fully confirms what has been now stated, and places the whole of the positions assumed by us beyond the possibility of a doubt as to their accuracy. We have only to add that the dentist, Dr. B., was found guilty by the jury, and sentenced by the judge to four years and six months imprisonment. We sincerely believe that a great wrong may here have been inflicted upon an innocent man, which can only be compensated by the probability that the fallible nature of the evidence upon which he was convicted will hereafter render it difficult to sustain an accusation upon similar proof. To complete this history, it may be added that Dr. B. subsequently received a pardon from the Executive of the state, in consequence of the large mass of testimony presented by physicians and dentists, going to prove the entire possibility that the whole accusation grew out of a hallucination such as ether is competent to produce.

[60] Boston Med. and Surg. Journ., Nov. 1858, p. 287.

[61] The views expressed in previous editions with reference to the very dangerous character of the precedent established by the decision in this case have been generally indorsed by the medical profession, and we

195. During hypnotic sleep.— The possibility of rape during hypnotic sleep is granted by Brouardel,[62] Ladame,[63] and Vibert.[64] Brouardel cites an instance of rape by a dentist who had repeatedly hypnotized a girl of twenty years.

196. During normal sleep.— The question as to whether rape is possible during normal sleep has received considerable discussion. That it is possible in a virgin can be conceived of only in some very exceptional circumstance. Two cases illustrating this point are related by Montgomery,[65] the one borrowed from Gooch and the other communicated by Mr. Cusack. In both the cases the females were unmarried, and regarded as virtuous, and both declared solemnly that they had no knowledge of the cause of their pregnancy. In each case the father of the child born confessed that he had had connection with the female while she was plunged in a deep sleep produced by excessive fatigue. Nor should such a statement be deemed incredible when we remember the instances quoted elsewhere, of children born without the mother's consciousness. If the woman be married, and the act be perpetrated under the cover of darkness, upon a woman who has fallen asleep while awaiting her husband or lover, a greater degree of belief must be given to such an explanation. Yet, while allowing all due weight to these exceptional cases, their occurrence should not lightly be assumed, the presumption being certainly against it.

The proof of unconscious sexual connection is usually derived from the occurrence of pregnancy without a knowledge of its origin. We subjoin a few examples. Klein[66] reports a case where a stepfather violated and impregnated his daughter of the age of eighteen, during her sleep. Zittman[67] relates the case of a girl who was impregnated during her sleep, and was only conscious of having had an oppressive

hardly think a similar result would be again reached. The gravest defect in the chain of evidence presented by the prosecution was the absence of any examination to prove recent defloration of the plaintiff. The fact, also, that the plaintiff thought she had opened her eyes while in the anesthetic state, and immediately closed them, goes very far to prove that the whole occurrence was a delusion, as opening and closing the eyes requires a voluntary effort, of which an etherized person would be incapable; and it is abundantly shown in the preceding remarks (§ 194) how common it is for patients under the influence of an anesthetic to have vivid activity of the brain present, while hardly ever is the dream similar to the real acts transpiring.

[62] Brouardel, Ann. d'Hyg. Pub., 1879, p. 39.

[63] Ladame, Ann. d'Hyg. Pub., 1882, No. 6, p. 518.

[64] Vibert, Ann. d'Hyg. Pub., 1881, No. 35, p. 399.

[65] Montgomery, Signs of Pregnancy, p. 362.

[66] Klein, Kopp's Jahrbuch der St. Arzneikunde, 10 Jahrg.

[67] Zittman, Med. Forens. Cent., v. Cas. 21.

dream. Alberti[68] mentions the fact of a girl having been violated and rendered pregnant while in a state of stupor from a potion prepared from the seeds of *datura stramonium* (Jamestown weed). Osiander[69] relates that a young girl, only fifteen years of age, having fainted with terror at the sight of some drunken soldiers, was shamefully misused by them, and left bleeding and in an almost dying condition; she, however recovered, but had got the venereal disease, and became pregnant. Klose[70] met with the case of a clergyman, who, while watching by the corpse of a young girl, gratified his lust upon her. Her death, however, was but a temporary suspension of animation, for she awoke and was pregnant. It should, of course, be remembered that the truth of the statement relative to the commencement of pregnancy is open to examination.

197. Unjust charges of rape.— Unjust charges of rape may be brought against a man not merely in the cases where the plaintiff has mistaken the offender, or where she is laboring under some mental delusion or hallucination, but by feigning rape for some malintent. The disproof of rape in such instances may be even more difficult than the proof of rape in some of the well authenticated cases; for we have seen that carnal intercourse may take place and leave no trace on the person of a married woman, and possibly, also, not even on a virgin.[71]

The following singular case occurred in France: Marie V——, aged twenty-eight years, was seen to fall down, apparently in a faint, near the house of her uncle, the district schoolmaster, at the entrance of a field adjoining the public road. Her hands were found fastened by a cord, her handkerchief was tied over her mouth, her hood (capote) was drawn over the upper part of her face, and fastened by pins in front of the eyes, leaving, however, a sufficient interval for the use of sight; her clothes were soiled with mud at the lower part only, and her camisole was laced. She did not apparently regain consciousness for several hours; she then related, with circumstantial detail, that she had been assaulted by four young men who had endeavored, though unsuccessfully, to violate her person. A medical examination being ordered, a vast number of superficial linear incisions were found, made apparently with the point of a knife or scissors; there were no contusions or marks of recent violence on the

[68] Alberti, Syst. Jurisprud. Med., Vol. II., p. 200.

[69] Osiander, Handbuch der Geburtshilfe, Art. 286.

[70] Klose, System der gericht. Physik, Art. 286.

[71] See § 175, *supra*.

genital organs or their vicinity. Her clothes were not torn or crushed, and in her pocket a penknife and scissors were found, on the points of which there were slight traces of blood. The girl at last, after much hesitation, confessed that she had not been the victim of any assault, but that in a paroxysm of hysteria, without any reason to account for the strange idea which took possession of her mind, she had herself inflicted these wounds with scissors on the parts of her body which she had been able to reach. The legal proceedings were consequently stopped.[72]

The following instance, where a child was made the plaintiff in an unfounded charge of rape, is also instructive. It is taken from a paper by Mr. Wilde[73] on the history of an epidemic of infantile leucorrhea, with an account of five cases of alleged felonious assault, tried in Dublin. "The first one of these cases was that of Margaret Walsh, a child aged nine and a half years, in whom the disease presented a very virulent form when it was discoverd by her stepmother, who, however, acknowledged that she had remarked her walking lame for several weeks before. There was considerable swelling and inflammation of the parts, and a most profuse purulent discharge. Upon the discovery of the disease by the stepmother, she at once accused the child of impropriety, and demanded the name of the person who had diseased her. Upon the child's denying all knowledge of such, she was forthwith 'soundly flogged,' and repetitions of the punishment promised until she confessed. It came out at the investigation that the mother took down the cross from the mantel-piece, and threatened her therewith—a very impressive mode of adjuration among the lower order of Irish. The neighboring women interfered, and by threats and promises endeavored to extort an acknowledgment, but without effect. Names of different persons were then suggested, but still the child said she could not remember any of them having offended her. Finally, an elder sister, who was present during one of these scenes of torture, reminded the child of an old pensioner named Barber (who resided in a distant part of the city, but who was formerly a neighbor of hers) having given her a bit of sugar some months before, when they lived in his neighborhood. This she acknowledged, and then arose the accusation." The man was arrested, committed for trial and sent to prison. The child stated that the prisoner took her into the open hall of a house adjoining his own,

[72] London and Edin. Month. Journ. [73] Wilde, Medical Times and Gazette, Dec., 1853, p. 550. From Gaz. des Hôp. September, 1853. Oct. 30.

and entered into a detail of the transaction, which is not necessary to quote. The medical evidence showed that the prisoner was not in any way diseased. "After a few words from Chief Justice Monahan, the jury at once acquitted the prisoner, who was discharged, with, however, that suspicion against his character which, among persons of his own class, is not easily eradicated, while the unhappy child was stigmatized as a young prostitute, who had acquired gonorrhea when little more than nine years of age!"

Another interesting case where the charge of rape was brought against a man with malintent, and where the person violated was a young girl, is the following: Here, however, the crime had been committed, but by another man. Thus—a tradesman of irreproachable character was accused by a woman of having violated her daughter, who was but eleven years of age, and of having communicated to her a gonorrhea. The child was of a very scrofulous constitution. The labia majora was separated and flaccid, the clitoris unusually developed, the entrance of the vagina inflamed, and painful to the touch, and the hymen obviously stretched. There was also a copious urethral discharge. The opinion given by Dr. Casper was, that a complete penetration had not taken place, but efforts by the male organ, affected with gonorrhea, had been made to effect it. The further progress of the case showed the truth of this opinion, but not of the accusation, for the defendant was found perfectly free from disease, and the cross-examination developed the fact, that the mother, after having fruitlessly endeavored to extort money from the tradesman, had delivered the child to her own paramour, a journeyman living in the same house, whom she knew to be affected with gonorrhea. She then threatened to denounce the tradesman, unless he gave her money.

198. Rape by women.— Rape by females is comparatively rare, but still well established. An instance of this kind is related by Casper in which a child only six years of age received a gonorrhea from his governess with whom he slept. In another and far more horrible case, a mother satiated her unnatural lust with her own son, nine years of age, upon whose body, however, no traces of the crime were perceptible.[74] Two cases have occurred in France,[75] in one of which a female of eighteen years obliged a boy under fifteen years to comply with her wishes; and in another a girl of eighteen was charged with rape on two children, the one of thirteen and the other only eleven

[74] Casper, Gericht. Med., II., 129. See also Klin. Novellen, 1863, p. 15.

[75] Ann. d'Hyg., 1847, I., p. 463.

years of age. She was affected with syphilis, which she communicated to the children. It is stated, also, that, from a narrowness of the vagina, she was unable to gratify her propensities with adults. The only means by which the rape by a woman can be established through medical evidence is where gonorrhea or syphilis has been thus communicated.

CHAPTER IV.

UNNATURAL CRIMES.

199. Sexual abuse.—In addition to rape there are recognized certain other immoral acts which may come into the courts as distinct charges, or need to be considered in connection with the cases of rape. The sexual abuse of children or irresponsible persons, independent of sexual connection, is by no means rare, though the proof is frequently difficult. Infection with a venereal disease is probably the most frequent evidence of such abuse, and yet many cases of purely accidental transmission of such diseases must be admitted. Habits of masturbation arising from such teaching are frequent. Injuries are not often found, though destruction of the hymen or its dilation, especially in such countries as India, where the early marriage of the girls is sought by the parents, is well known.

200. Pederasty.—Pederasty,[1] or coitus in ano, is a very frequent form of unnatural crime. Tardieu states that on two occasions the sudden descent of the Parisian police upon certain dens of vice resulted in the capture of eighty-seven persons in the one and fifty-two in the other, found *flagrante delicto*. The evidence of the person taking the active part is not characteristic. Tardieu describes the result of numerous repetitions of the act as producing a small, pointed glans penis; but Hofmann[2] considers this condition to be found as well in other persons. The evidence in the person taking the passive part is equally unsatisfactory, though there have been described a funnel-shaped depression of the nates, a smooth, patulous condition of the sphincter ani, and possibly the scar of old lacerations. After the first act of the sort the passive party may show fissures,

[1] See Tardieu, Attentats aux Mœurs, p. 123; Parent-Duchalet, De la Prostitution dans la Ville de Paris, Vol. I., p. 225; and Casper, Vierteljahrschr. f. gericht. Med. Bd. I., H. I.; also *Ibid.* Bd. VII., H. 2. For an historical account of the vice, see Geschichte der Lustseuche im Alterthume, etc., Julius Rosenbaum, Halle, 1845.

[2] Hofmann, Gericht. Med., p. 164.

excoriations, or lacerations in the anus, or acute inflammation of the rectal mucous membrane. The presence of venereal disease of the rectum is always a very suspicious circumstance. The presence of semen in the rectum would be positive proof if disease of the genital tract, with a fistula leading into the rectum, could be excluded. But demonstration of semen in such a case would need to follow pretty closely upon the act. Casper[3] demonstrated the presence of semen upon the shirt of a boy of eight years who had been abused by a boy of fourteen and a half years of age. Casper also describes pederasty against the will of the passive party, which he considers more difficult than rape.

201. Sodomy.—Sodomy, or sexual connection between human beings and animals, usually occurs between a man and a female animal (mare, cow, or goat, more rarely with bitch), and would come to the courts probably only as an offense against the animal. One such case is reported by Kutter,[4] where a man was caught in the act of having connection with a mare. A hair from the mare was found under the prepuce and around the glans of the man; blood was found on his pants and shirt, and a bloody discharge from the vagina of the mare. But laceration of a mare by the penis of a man would certainly be very unusual. In some cases it may be possible to demonstrate human spermatozoa in the vagina of the animal. Roose cites[5] two other such cases of sodomy, where a man had connection with a mare. Cases of intercourse between woman and a male animal are not very rare. One has been reported from San Francisco and one from Washington, D. C. Hofmann says[6] that all, so far, have been with dogs. He cites the case of Pfaff,[7] where, as proof of the offense, the hairs of the dog were found between the labia of the woman. In the Philadelphia Medical and Surgical Reporter[8] there is described a case of vaginitis due to connection with a dog.

202. Pederasty with animals.—Instances of pederasty between animals and men are also on record. As a rule the man takes the passive

[3] Casper, Gericht. Med., p. 208.

[4] Kutter, Vierteljahrsch. f. gericht. Med., 1865, II., 355.

[5] In Witthaus and Becker's Medical Jurisprudence; 1 Va. Cas. 307; and 8 C. & P. 417.

[6] Hofmann's Gericht. Med.

[7] Pfaff, Das Haar in forensischer Beziehung, 1866, p. 79. See also Schauenstein, Lehrbuch d. gericht. Med., 1875, p. 161; and Maschka, Handbuch d. gericht. Med., p. 190.

[8] Med. and Surg. Reporter, Phila., July 22, 1893, p. 155.

part and a male animal the active part. Such cases,[9] however, deserve scarcely more than to be mentioned, as their medico-legal significance is but slight.

[9] For instances of pederasty between men and animals, see Tardieu, Attentats aux Mœurs, 1878, p. 12; Bouley and Brouardel, Ann. d'Hyg. Pub., 1884, p. 528; and Virchow's Jahresberichte, 1887, p. 483, and *Ibid.* 1888, p. 447.

BOOK III.

PHYSICAL INJURIES BY FORCE.

BOOK III.

PHYSICAL INJURIES BY FORCE.

CHAPTER I.

WOUNDS.

I. General.

203. Definition.
204. Examination, in general.
205. Expert examination.
206. Classification of wounds in general.
207. Subcutaneous wounds.
    207a. Ecchymoses.
    207b. Dislocations and fractures.
208. Open wounds in general.
209. Punctured.
    209a. Size.
    209b. Shape.
210. Incised.
    210a. Direction of incision.
    210b. Bleeding.
    210c. Irregular.
211. Lacerated.
    211a. Types.
212. Gunshot wounds in general.
213. Cannon balls.
214. Small shot.
215. Rifle and revolver bullets; small caliber jacketed bullets.
    215a. Larger caliber lead bullets.
216. Wadding wounds.
217. Powder wounds.
218. Mutiple wounds.

II. Degree of injury.

219. Mortal versus nonmortal wounds, in general.
220. Sources of danger.
221. Direct sources, in general.
222. Exhaustion.
223. Hemorrhage.
    223a. Bleeders.
    223b. Internal.

I. In general.

203. Definition.— The term "wound," in a surgical sense, means a solution of the continuity of the skin. But in legal parlance the term is used in the broader popular meaning to include any lesion due to external violence. "Any lesion of the body, whether cut, bruise, contusion, fracture, dislocation, or burn," is considered a wound in

the legal sense.[1] Scratches are not considered serious enough to be included as wounds.[2]

204. Examination, in general.— The examination of the wound from the legal point of view, if the person is still living, naturally should not be made so as to compromise in any way the healing of the wound. Bandages and splints should not be removed or probing of the wound done except with the approval of the surgeon in charge. The lines of examination should lead to the determination as to when the wound was inflicted, what the degree of danger of the wound is, with its dangers to life or function, whether the wound was given by the injured man himself, or by some one else, and with what manner of instrument the wound was produced. If the examination is made after death it may be made more searchingly; and to the above questions must be added the determination of the causes of death, and the time of inflicting the wounds,—whether before or after death.

205. Expert examination.— Whatever parts of the examination call for the application of special knowledge of which the examining physician may not be possessed should be submitted to an expert in that special branch, and, as far as possible, these experts should be present at the time of the examination, that they may know precisely what processes the specimens submitted to them have gone through. It is entirely impossible for any practitioner of medicine to be even acquainted with all the appliances and new modes of examination which modern science has produced. It is to this cause chiefly, *viz.*, the disparity in the attainments of one physician as compared with another, and also to the natural division of medical science and practice into numerous departments, some of which may be cultivated to the exclusion of others, that the "disagreement of doctors" is really due. Men of equal medical attainments will rarely differ upon an essential point of pathology or practice; but ignorance, or defective knowledge in medicine, does not differ from that in any other branch of science, in being usually associated with presumption and obstinacy. Still, there are few practitioners of medicine who are thoroughly prepared to enter upon an examination of all the medical aspects of a case of violent death; familiarity with the means required to carry through such an investigation can be gained only by special study, for which, to the majority, time is wanting.

Circumstances may, however, impose upon the physician the duty

[1] Wharton's Law Lexicon.

[2] See *Reg.* v. *McLaughlin*, 8 C. & P. 635, 34 E. C. L., 561; *Reg.* v. *Wood*, 4 C. & P., 381. 19 E. C. L., 430; *Com.* v. *Gallagher*, 6 Met. (Mass.), 568; *State* v. *Leonard*, 22 Mo., 450.

of making an examination for which he does not feel himself fully competent. In remote or interior parts of the country the means for the successful prosecution of a medico-legal inquiry are usually not at hand; whoever may be obliged to undertake an examination under such circumstances should endeavor to obtain the assistance of a colleague, and should candidly represent to the authorities the necessary imperfection of the examination, and what influence this may have upon the objects of the inquiry.

206. Classification of wounds in general.— In the determination of the instrument which produced the wound, we classify wounds according to their form, as subcutaneous or open. The subcutaneous wounds are represented by the black and blue spots associated with a simple contusion where the skin is not broken, the sprains and dislocations where the ligaments around a joint are torn, and fractures where the bones, or, in a more liberal interpretation of the term, any of the more rigid organs, such as the liver, spleen, or kidneys, are broken. The open wounds are classified as punctured, incised, lacerated, or gunshot; in each of which the name is descriptive of the character of the wound.

207. Subcutaneous wounds.— Subcutaneous wounds are very deceptive on surface examination. There may be a large ecchymosis, a black and blue spot, and but little injury to the deeper tissues, or there may be a very extensive internal injury, giving no evidence on the surface. It may even happen that, although no marks of violence can be found externally, or, at least, none which will explain the person's death, internal injuries may be discovered upon dissection which will render it certain that the death was violent. Indeed, Casper goes so far as to declare that, as a general rule, when death follows an injury, suddenly or speedily, in consequence of internal hemorrhage or other effect of laceration of an internal organ, the signs of external injury are either slight or are entirely wanting. Among numerous instances of this description, furnished by Casper's experience, the following is one of the most striking: On a cold winter's night a wagoner was descending the hill from Spandau with a heavily loaded wagon, and dismounted in order the more easily to guide his team. In doing so, he was thrown violently against one of the poplar trees which line the road, and where, in the course of the night, he was found dead. The only external injuries consisted of a slight abrasion upon the left arm, and a similar one upon the right temple. In the head there was nothing worthy of note, except that the transverse sinus was unusually distended with blood. On opening the

spinal canal, about a quart of dark fluid blood escaped. The spinous process of the first thoracic vertebra was broken off. The deeper spinal muscles were ecchymosed, but the spinal cord was uninjured. The left pleural cavity contained about thirty ounces of liquid blood. The pericardium was torn completely across, and the heart, severed from its large vessels, lay almost entirely loose in the cavity of the thorax. The open ends of the aorta and pulmonary artery were distinctly visible. The heart itself was sound and firm, and, on both sides, but in the ventricles especially, contained much dark, coagulated blood. The left lung was entirely torn through its middle portion, and in the right lobe of the liver was a laceration two inches long, by half an inch deep. And yet the exterior of the body presented nothing remarkable.[3]

A case is reported by Dr. Ellis, of Boston, of a woman who was knocked down and run over by a sleigh. She lived for ten days after the accident, and there was no mark of external injury. On examination after death, the liver was found to be lacerated, the common bile-duct was torn across, and several fractures appeared in the right kidney.[4]

207a. Ecchymoses.— The ecchymoses which are the usual sign of a contused wound are very slight or absent if the wound was made with an instrument which diffuses the force of the blow over a large area. Such are the contusions produced by a sand bag. Even if the blow is inflicted directly over a bone, where, usually, the ecchymosis is most prompt to appear, the sand bag contusion leaves no mark. Similarly, Balch describes a case[5] examined by him in 1895, of a man who, while drunk and lying on the ground, was jumped upon by another man over the back of the neck. There were no signs externally of injury, although the man died. On examination of the deep tissues clots were found on the brain, said to be due to apoplexy following alcohol, and clots near the spinous process of the fifth cervical vertebra, and surrounding the spinal cord. These later findings were interpreted as being due to the traumatism, and the absence of external signs was explained by the possible protection of the man's clothing. Another point to be considered in connection with the absence of external signs in such traumatisms is that, while the ecchymosis usually appears in a few minutes if the blow is over a bone, on the other hand, if the blow is over soft tissues, and the force of the

[3] Gericht. Med., Vol. I., p. 122.
[4] Boston Med. and Surg. Journ., April, 1860, p. 222.
[5] Balch, Peterson and Haines's Textbook of Medical Jurisprudence and Toxicology, 1903, Vol. I., p. 270.

blow is transmitted to the deeper parts, the discoloration of the skin may not show for a day or more, and then is likely to appear at a distant point. The late appearance of discoloration or its absence is particularly marked in blows upon the abdomen, where there may be rupture of the viscera without any external signs.

207b. Dislocations and fractures.—In regard to the other subcutaneous wounds, we may have in the bruises and dislocations and sprains but little more evidence of the condition of the deep parts than in the simple contusions. Dislocations of the smaller joints are so easily overcome that they may have been reduced before the arrival of a physician. Even dislocations of the shoulder may be reduced in some cases by a layman, and leave nothing for the physician to find but evidence that could not be distinguished from a contusion except by dissection of the injured part. In the diagnosis of fractures of the bones the recent introduction of the Roentgen rays has added materially to the accuracy of our knowledge of the condition of the parts. With its aid we are able to see the outline of the denser structures of the deep parts, and so can determine any break in the bones that is associated with displacement of the broken parts. There may, however, be a splitting of the bone, which will not show in the shadow picture; and, again, when there is a fracture in a region where there are many dense structures, as in the skull or in the pelvis, the skiagraph may be so obscured as to be no aid. Hence, the fact that the diagnosis of fracture cannot be confirmed by the X-ray picture should not be taken as excluding the fracture.[6]

[6] In 1900, White as chairman of a committee on the medico-legal relations of the X-rays, presented to the American Surgical Association the following conclusions, which were unanimously adopted as expressing the views of the Association:

(a) The routine employment of the X-rays in cases of fracture is not of sufficient advantage to justify the teaching that it should be used in every case. If the surgeon is in doubt as to the diagnosis, he should make use of this as of every other available means to add to his knowledge of the case; but even then he should not forget the grave possibilities of misinterpretation. There is evidence that even in competent hands plates may be made that will fail to reveal the presence of existing fractures, or will appear to show a fracture that does not exist.

(b) In the regions of the skull, the spine, the pelvis, and the hips, the X-ray results have not yet been thoroughly satisfactory, although good skiagraphs have been made of lesions in the last three localities. On account of the rarity of such skiagraphs of these parts special caution should be preserved when they are effected, in basing upon X-ray testimony any important diagnosis or line of treatment.

(c) As to questions of deformity, skiagraphs alone, without expert surgical interpretation, are generally useless and frequently misleading. The appearance of deformity may be produced in any normal bone, and existing deformity may be grossly exaggerated.

(d) It is not possible to distinguish after recent fractures between cases in which perfectly satisfactory callus has formed and cases which will go on to nonunion. Neither can fibrous union be

208. Open wounds in general.—The open wounds are classified as punctured, incised, lacerated, and gunshot.

209. Punctured.— Of the open wounds where the skin is penetrated, the punctured are those where the depth of the wound is much greater than its length: such as would be made by a pin, bayonet, or knife-stab. Such wounds may be made for surgical purposes; and under such conditions, while extending to the depth of several inches, as in exploratory aspirations of the pleural cavity, liver, or pelvis, are associated with practically no bleeding, and very little danger. But when accidentally made, or made with the intent to injure, they are often very serious because of puncturing large blood vessels, or leading to internal hemorrhage, while giving very little external evidence of trouble. Vibert quotes an extremely interesting case from Brierre de Boismont,[7] of a suicide having a stab wound of the upper part of the abdomen, who, for several hours after the injury, gave no evidence of the injury. He was taken to the hospital, and the surgeon gave the opinion that the wound had not penetrated. Death, however, came on suddenly, and on the post-mortem examination cuts were found traversing the intestine, opening the inferior vena cava in three

distinguished from union by callus in which lime salts have not yet been deposited. There is abundant evidence to show that the use of the X-ray in these cases should be regarded as merely the adjunct to other surgical methods, and that its testimony is especially fallible.

(e) The evidence as to X-ray burns seems to show that in the majority of cases they are easily and certainly preventable. The essential cause is still a matter of dispute. It seems not unlikely, when the strange susceptibilities due to idiosyncrasy are remembered, that in a small number of cases it may make a special individual especially liable to this form of injury. Later experience has shown that while burns occur in only a small minority of cases, those cases can not, with our present knowledge, be anticipated or prevented with absolute certainty.

(f) In the recognition of foreign bodies the skiagraph is of the very greatest value; in their localization it has occasionally failed. The mistakes recorded in the former should easily have been avoided; in the latter they are becoming less and less frequent and, by the employment of accurate mathematical methods, can probably, in time, be eliminated. In the meantime, however, the surgeon who bases an important operation on the localization of a foreign body buried in the tissues should remember the possibility of error that still exists.

(g) It has not seemed worth while to attempt a review of the situation from the strictly legal standpoint. It would vary in different states, and with the different judges to interpret the law. The evidence shows, however, that in many places and in many differing circumstances the skiagraph will undoubtedly be a factor in medico-legal cases.

(h) The technicalities of its production, the manipulation of the apparatus, etc., are already in the hands of the specialists, and with that subject also it has not seemed worth while to deal. But it is recommended that the surgeon should so familiarize himself with the appearance of skiagraphs, with their distortions, with the relative value of their shadows and outlines, as to be himself the judge of their teachings, and not depend upon the interpretation of others who may lack the wide experience with surgical injury and disease necessary for the correct reading of these pictures.

[7] Brierre de Boismont, Suicide et Folie de Suicide, Paris, 1856; quoted by Vibert, Précis de Méd. Lég., 9th ed., 1896, p. 285.

places, penetrating the diaphragm, pericardium, and right ventricle, and dividing the aorta. The instrument had evidently been introduced and then turned in various directions.

209a. Size.— The relation of the size of the punctured wound to the instrument producing it is also important. The depth to which the instrument penetrates may not only be less than the total length of the instrument, due to but partial introduction, but, if the tissues will allow of compression, as they usually do, the instrument, by depressing the skin, may produce a wound distinctly deeper than the length of the instrument. Again, the size of the skin opening may not merely be larger than the diameter of the weapon, due to cutting or tearing of the skin, but, if introduced just perpendicular to the skin, it may so stretch the skin as to make an opening which, after the removal of the weapon, becomes smaller than the diameter of the weapon, due to the contraction of the elastic skin.

209b. Shape.— Usually needles and rounded instruments used to make punctured wounds do not make a round opening, but part the skin in the line of least resistance, as determined by the elastic fibers in the skin, and so leave a wound that appears rather like one made by a bladed instrument, having two sides and two acute angles. In the arms and legs the direction of these slit-like wounds produced by puncture follows, in general, the long axis of the limb; and on the head and trunk is more or less perpendicular to the long axis of the trunk, but varies in the different regions.[8] Similarly, in the deeper tissues these punctured wounds produce apertures determined by the direction of the fibers of the different layers, differing for each layer. Similarly, too, these wounds by rounded instruments are like those from bluntly angular weapons, such as bayonets, which, in the leg, for instance, no matter at what angle they happen to be rotated, tend to produce a linear wound, parallel to the long axis of the leg. The same effect is seen even in single-edged knives, which, while they may produce a wound in the form of an elongated triangle, the base corresponding to the back of the knife, yet often produce wounds with two sharp angles, if made by a double-edged blade. Hence, from the appearance of the wound it is possible to determine only approximately the shape of the instrument producing the puncture.

210. Incised.— Incised wounds may be made by any instrument having an edge sharp enough to cut the skin, whether the weapon be

[8] See Hofmann, Gericht. Medicine, for a figure giving the direction of these wounds in the various parts of the body.

made of steel, as a distinct edged-tool, or whether it be a rough bit of iron, tin, glass, or even wood. If the weapon is of distinct weight, like a hatchet or an axe, in addition to the incision there is also a certain amount of crushing of the tissues. The edges of the wound are cleaner and more sharply defined in proportion to the sharpness of the instrument used. The separation of the edges of the wound depends upon the direction of the muscle fibers in the deeper structures which are cut. When the muscle is cut transversely, the ends of the muscle retract and give a wide gaping; while, if the incision is made parallel to the muscle fibers, there is merely the gaping due to the retraction of the elastic fibers in the skin. Wounds made with a knife or edge tool tend to be straight or evenly curved, while those with a piece of broken glass or scrap of tin are usually more irregular.

210a. Direction of incision.— The direction of the incision may often be determined by a nick in the skin at the end where the knife was introduced, due to the elasticity of the skin giving way before the pressure of the blade. While at the other end of the cut the wound tails out towards its finishing point.

210b. Bleeding.—The bleeding from an incised wound is greater than that from either the punctured or the lacerated wound, because the blood vessels are cut freely across, and allow the easy escape of the blood.

210c. Irregular.— Wounds inflicted while the skin is thrown into folds because of the fullness of the skin or from the position of the body do not give a simple, straight, incision, even though the cut may have been straight; but show irregularities corresponding to the folds in the skin. There may even appear to have been several wounds, produced by a single stroke.

211. Lacerated.— Lacerated wounds are such as are produced by crushing, or tearing the tissues by some blunt instrument. They follow blows from directly applied blunt weapons, falls (where the ground acts as the blunt weapon), and they can also be produced by the crushing or tearing of the tissues when a person is caught in parts of machinery. Characteristic of these wounds are their irregular shape and great amount of tissue destroyed compared with the size of the opening in the skin. There is always a marked contusion of the tissues adjoining the open wound, and the edges of the cut are irregular. Very rarely do they give more than a suggestion of the instrument with which they were inflicted. Blows, or even falls, opening the scalp, usually give linear openings which simulate incised wounds. The edges of the wound, however, are not as clean

cut, and the contusion of the neighboring parts and often the existence of a fracture of the skull at that point may serve to distinguish between the incised and the lacerated wound. From the medical examination it may be impossible to tell whether a linear wound of the head, discovered immediately after a fight between two men, was caused by a blow with some blunt weapon, the fall following the blow, or a fall during the retreat of the man injured. In such cases the position of the wound, compared with the known relative position of the two parties during the quarrel, will be the chief fact upon which the decision can be based.

211a. Types.—Falls usually give multiple injuries, of which only those over bony parts may be open, lacerated wounds. Machinery injuries[9] are often very extensive, and associated with the tearing off of large areas of skin, as in the cases where a woman's hair is caught in the belting of the machinery, and the entire scalp is torn off, or when the hand is caught and the skin and muscle tendons clear up to the elbow are torn away.

212. Gunshot wounds in general.— Gunshot wounds are those inflicted by missiles of any character propelled by the force from the explosion of gunpowder. The size of the missile varies from the large cannon balls and shells, which may destroy large portions of the body, to the small bird shot, many of which may be lodged in the body without any great inconvenience. Naturally the character of the injury will depend upon the kind of shot, the distance from the body that the gun is, and the velocity with which the shot strikes the body.

213. Cannon balls.— Injuries from cannon balls would almost inevitably occur under such circumstances that they would not be confused with wounds from small fire arms. They present large, lacerated, generally infected wounds, with such great destruction of tissue that they can be easily identified.

214. Small shot.— Wounds from the multiple small shot of a fowling piece are also too characteristic to be mistaken for any other injury. It is chiefly important to be able to estimate the distance from the body at which the weapon was fired. Fowling pieces of the usual type are made to kill game (penetrate several sheets of brown paper) at a range of about 40 yards. At that distance the shot have penetration enough to kill the ordinary small game, and

[9] Tardieu in his "Etude Médico-légale the different professions, due to masur les Blessures" devotes considerable chinery, boiling, freezing, fall of rocks, attention to wounds liable to occur in explosions, *et ceicra.*

the shot are usually concentrated into an area 30 inches in diameter. They are rarely fatal beyond 100 yards. The muzzle velocity of the shot is, perhaps, 300 feet per second. If the gun be fired at a distance less than a foot from the body, it will produce one single wound at the surface, though deeper the shot will diverge. At a distance of 1½ feet there will be some separate wounds on the skin. At a distance of a yard the shot will probably all enter separately, but may be included within a diameter of 3 or 4 inches. And this area over which the shot will spread will increase in proportion to the distance, so that at 15 yards the shot will be scattered over the entire trunk of a man, and, at 40 yards, about 30 inches, with many scattering shot outside that circle. When the gun is fired sufficiently near to the person for the charge to enter the body in one mass, before separating, the wound is of considerable extent and gravity. Its edges are ragged, contused, and blackened; and, as the shot diverge after entering the body, great laceration and injury of the parts underneath take place. At greater distances each shot will produce a distinct though trifling skin wound. Nevertheless, a single pellet may occasionally produce death. Thus, in a case related by Ollivier d'Angers, a thief, scaling a wall, received, at the distance of 15 paces, a charge of shot from a fowling-piece. He fell dead immediately. The charge had struck him in the breast, scattering over an extent of 3 to 4 inches, but one grain had penetrated the aorta over the attachment of the sigmoid valves, and another had traversed the anterior wall of this vessel. The wounds had the form of linear incisions, two lines in extent, and such as would be made by a fine double-edged and pointed instrument. If the shot have had to penetrate the clothing, especially if this be loose and thick, before entering the body, the usual character of a near wound from this cause will be modified; the shot is spread out of its course by this obstacle to a certain degree, and does not enter the skin in a mass, causing a round, tolerably regular opening, but being somewhat scattered, will either produce a large, lacerated wound, or a number of small wounds, according to the position in which the weapon is held.

215. Rifle and revolver bullets; smaller caliber jacketed bullets.— Bullet wounds from a rifle ball vary markedly with the kind of bullet used. The modern army rifle is used with a small caliber, jacketed bullet of great velocity. The Krag-Jorgensen of the United States army, the Lee-Metford of the British army, and the Mauser of the Spanish and Boer armies all belong to this type. The bullets

are 6.7 to 8.2 mm. in diameter, and 30 to 32 mm. in length. They weigh from 10 to 16 grams, and have a muzzle velocity of 1,968 to 2,395 feet per second. They are capable of inflicting a mortal wound at a distance up to 5,000 yards (over 2¾ miles). They have a penetrating power five or six times that of the old 45-caliber lead bullets of the Springfield rifles. Moreover, the hard metal case prevents the deforming of the bullet. In consequence of these characteristics the bullet wounds are clean-cut perforations from the wound of entrance to the wound of exit. Even if a bone is encountered the bullet cuts a clean path through it.

At short range, however, (under 600 yards) the effect of these small caliber jacketed bullets is very different, producing very destructive, almost explosive, effects. Bones are shattered into many pieces, and the soft, solid organs, such as the brain, liver, kidney, and spleen, and the hollow organs filled with fluid, such as the bladder, stomach, and intestines, are widely ruptured. Moreover, these bullets rarely carry infection with them, so that the danger from infection is not great. The bullets are rarely deflected in the body from their straight course, even if they come in contact with a bone. The wounds of entrance and of exit are so much alike that it may be very difficult to determine from which side the ball entered. The hard jacket of the ball also prevents the splitting of the bullet. Bullets deformed before they strike the body, by a ricochet impact, tear through the tissues, producing great laceration of the tissues, and usually carry infection with them.

215a. Larger caliber lead bullets.— The old style rifles with the lead bullets of larger caliber, 32 to 48 (the figures representing hundredths of an inch) and slower muzzle velocity (1,000 to 1,500 feet per second) are similar in their effect to the revolver and pistol. It is with the revolver wounds that most civil cases have to deal. Low velocity lead bullets, on striking the skin, produce a depressed wound, usually smaller than the caliber of the bullet, and often darkened on the edges by the lead or the dirt. In its passage through the tissues the course of the bullet is often irregular, the ball being deflected by impinging on a bone or even on a fascial sheath, a nerve, or even an artery. At times the arteries, nerves, or tendons are pushed aside, while the veins are more often cut. The ball may be cut in two by an edge of bone or possibly by a fascial layer, the two portions then each following its own course.

The course of these bullets through the body varies so much, due to the deflection by the firmer tissues, that even

if the wound of entrance, and the line which the bullet was following when it struck the body, are known, the path in the body cannot be predicted with any certainty. Many instances of this fact are given by all authors on military surgery. The following is a singular illustration of it: In a duel with pistols between two students of Strasburg, one fell, apparently mortally wounded in the neck, but almost immediately got up, without feeling any inconvenience from his wound. It was found that the bullet had struck the larynx obliquely, and, glancing from the cartilage, had gone completely around the neck, and stopped on the opposite side of the larynx from where it had entered. It was taken out by simply making an incision over it. Other examples might be cited in which balls have made a circuit around the cavities of the body without entering them. In a wound of the head, thorax, or abdomen, the ball may make a half circuit of the body, and lodge or emerge at a point opposite that at which it entered, thus leading one to suppose that it must have passed directly through. In the battle of Suddozam, a soldier was struck by a bullet just above the right haunch bone. The ball passed around the trunk, entered the abdominal parietes on the left side, then passed downward through the sciatic notch, and "at length contented itself with remaining in the left nates." [10]

The bullets may even be deflected by the skin or some subcutaneous bone, leaving a slit-like wound, more like that expected from an edged instrument than like an ordinary perforating bullet wound. So, too, wounds by bullets that are deflected after penetrating the skin may so weaken the deeper tissues just below the skin that if, for instance, the wound be of the abdominal wall, after the wound has apparently healed the weakness of the wall may lead to a hernia.

The slower velocity of the lead bullet, and the ease with which it is deformed leads to much more laceration of the tissues than in the case of the more rapidly moving jacketed bullets. Infectious material, also, is more frequently introduced with the ball, so that the dangers of the wound are greater. The wound of exit of these bullets is often distinctly different from that of entrance. It is larger, more irregular in shape, and often protruding. The edges of the wound are usually distinctly lacerated. While the wound of exit is larger than the wound of entrance, it may still be smaller than the bullet, as Matthysens has shown[11] by experiment on the dead body,

[10] Cole's Military Surgery.
[11] See Gaz. des Hôpitaux, No. 145, Quest. Méd. Lég. surles Plaies par les Armes à Feu.

with a pistol fired at 12 paces from the body. With a ball 15 mm. in diameter he obtained a wound in the breast 8.5 mm. in diameter, and at the point of exit on the back, a wound 10 mm. in diameter. Similar relations were obtained from wounds in other parts of the body. Bullets from these low velocity weapons lodge in the body much more frequently than those from the modern small caliber rifles.

The appearance of the wound of entrance changes as the time after the infliction lengthens. The description just given is that of the fresh wound. Within a few hours there are evidences of contusion in the reddening of the edges of the wound, and this may proceed to necrosis of the tissues to such an extent that the wound of entrance after a few days becomes larger than that of exit. Moreover, the wound of exit tends to heal more rapidly than the wound of entrance, so that after a few days the original condition may be reversed, and the wound of entrance becomes larger than the wound of exit.

If the firearm be exploded in immediate contact with the body, the wound is large and circular, the skin denuded, blackened, and burned and the point where the ball has entered livid and depressed. The blackening and burning of the skin is often associated with the embedding of grains of powder. If a pistol be held tightly against the skin, so that no air may escape around the end of the barrel, the compressed air may act as a cushion, and force the explosive gases to escape through the joints of the gun. Here there would be no injury from the bullet.

In the celebrated case of Peytel, tried in 1839, for the murder of his wife, it was found that she had been killed by two balls which entered near the nose. The eyebrows, lashes, and lids were completely burned, and a large number of grains of powder had imbedded themselves in the cheek. Experiments being made in order to determine the distance required to produce these effects, it was found that the weapon must have been held within a foot's distance.

216. Wadding wounds.— According to some experiments made by Dr. Swift, it was found that a pistol loaded with powder and wadding alone, at 12 inches distance, tore the clothes and abraded the skin, without penetrating it; at half this distance, the wadding penetrated to the depth of half an inch; at 2 inches, a ragged and blackened wound was made, and the wadding was embedded at the depth of 2 inches; at 1½ inches from the chest, the wadding passed between the ribs into the thorax, and, in a second experiment, carried

away a portion of the rib.[12] M. Lachèse found in his experiment that the distance at which the wadding of a gun would enter the body in one mass did not exceed 6 inches from the muzzle, but that even at this distance it only occurred when a double charge of fine powder was used, and with an army cartridge.[13] Hence, it is probable that an ordinary wadding, such as loosely wrapped paper, rag, or similar material, used in a fowling-piece, or in a musket by those not accustomed to the military use of the weapon, would not produce a rounded opening which would resemble that made by a bullet. Even if held at a less distance than 6 inches from the body, it is doubtful whether such a wound could be produced. Yet, although the opening may not be mistaken for that made by a bullet, it is certain that dangerous and fatal wounds are often made with wadding at short distances, by its penetrating the body and lacerating some important blood-vessel.

Shotgun wads may mark the skin up to a distance of 5 yards. The distance which a gun will ignite a person's dress or cloth or paper of any sort must be determined for each style of gun; in general, for small arms, it may be said to be less than 1 foot. The wounds from toy pistols, made by wadding without any bullet, seem especially prone to carry the infection of lockjaw.

A curious and interesting case, which led to experiments confirmatory of the above, occurred in Paris, in 1858. In the circus a cannon was fired in the direction of the boxes, at a distance of about 150 feet. The cannon was about 4 feet long, 4 inches in caliber, and loaded with 3 ounces of powder, retained by a wad made of old theater bills torn from the street walls, loosely rolled together and rammed home with moderate force. On one occasion a man was seated in a box opposite the muzzle of the gun, and at the distance already mentioned; he was leaning forward, with his arms crossed upon the handle of his umbrella, and, as the explosion took place, he fell violently backward, and was afterwards found to have his arm broken above the elbow. Several portions of wadding were found upon the ground underneath the place where the man had sat; but no marks existed upon his clothing, and none upon the anterior part of the arm, which, indeed, must have been inaccessible to any projectile that did not at first strike the forearm. It was concluded that the fracture had been caused by the sudden and violent starting of the man backwards, which must have brought his arm against the

[12] Phil. Med. Exam., March, 1846.

[13] Orfila, Méd. Lég., 4me edition, 2, p. 464.

hard edge of partition; and various experiments tried with the cannon proved that any wadding which could be made of paper was dispersed in pieces, or lost all power of mischief, at a much less distance than 120 feet.[14]

217. Powder wounds.— Gunpowder alone is capable of producing wounds which may prove fatal. When a pistol or gun charged with gunpowder alone is fired at an uncovered portion of the body at a distance of a few inches, a blackened, burned, and slightly lacerated wound will be produced, or, if the grains of powder be large, the skin may present the appearance of having been struck with small shot. The burnt appearance of the skin, the singeing of the hair in the neighborhood, or the burning of a portion of the clothing, will all indicate that the charge has been fired close to the body.

The introduction of smokeless powder with these new rifles has modified also the character of the powder burns. Major Blankensop records three cases of suicide with Lee-Metford rifles, small caliber bullets, and cordite powder at short range. In none of them was there any blackening, charring, or tattooing from the powder.[15]

218. Multiple wounds.— Multiple wounds from a gun may be found not merely from the shotguns, which are ordinarily loaded with several bullets, but also from a rifle or revolver, loaded with a single bullet. Such instances are evidently possible when, for example, a bullet traverses a limb and then enters the trunk or head. Similar multiple wounds are caused by the splitting of the bullet either just before or after it enters the body, the two fragments each making its own path. At the same time it should be remembered that the gun may have been charged with more than one bullet. In cases where the gun has been known to be charged with more than one bullet, only a single wound may be found, one of the bullets having passed by outside of the body.

The appearance of the gunshot wound is usually so characteristic that it is not liable to be mistaken for one inflicted by any other method. But in instances where there has been only the wound of entrance and no wound of exit it may be desirable to confirm the diagnosis by an X-ray examination, which will show the presence of the bullet in the body. Gunshot wounds are usually associated with considerable shock to the nervous system, so that wounds which, at the moment of infliction, seem to be trivial, may, in the course of a few hours, develop most alarming symptoms of shock.

[14] Annales d'Hyg., Avril, 1859, p. 420.
[15] See Brit. Med. Jour., Vol. I., 1900, p. 434.

II. Degree of injury.

219. Mortal versus nonmortal wounds, in general.—In considering the extent of injury done, account must be taken of the injury to the function of the various organs, and also the danger to life. A division into mortal and nonmortal wounds, if it could be made, would be very desirable; but the unexpected complications and the various extraneous causes which give gravity to the simplest cases, and, on the other hand, the favorable termination of some injuries apparently the most dangerous, render any such classification impracticable. The general classification into slight, severe, dangerous, and mortal wounds may be used, but the possibility of the slight wound terminating with the loss of the person's life, and the apparently mortal ending with only a slight impairment of some function, must always be kept in mind. The interference with the function of any part of the body, due to the wound, will be considered later, in connection with the wounds of the various parts of the body.

The danger to life of any wound is dependent upon a number of factors: the extent of the injury, the form of the wound, the region of the body affected, the blood vessels, nerves, or organs involved, the entrance of disease-producing bacteria or other organisms into the wound, the age and constitution of the person injured, and the opportunities for administering proper surgical treatment. No one should be willing, on theoretical grounds alone, to give an opinion as to the agency of the wound in producing death. A careful post-mortem examination will usually show the violent cause of death, and it is the duty of the physician whose opinion is desired, to make that examination most carefully, and to base his opinion entirely upon the findings of this examination; not upon previous notions of the probable nature and effects of the wound. Moreover, it is necessary not merely to make an examination of the regions apparently involved in the injury, but also a thorough examination of the entire body; for, notwithstanding the immediate cause of death may be evident, it is still advisable to be sure that there was no cause of death in any other part. Although there may be no suspicion of poisoning, the stomach should be opened. In a case often referred to, a girl died while her father was chastising her for stealing; and, on account of the marks of violent treatment upon her body, it was supposed that this had caused her death. On opening the stomach, however, it was found to be inflamed, and contained a white powder, which was proved to be arsenic. The girl had taken the arsenic in

dread of her father's anger, upon the detection of the theft; she vomited during the flogging, and died in slight convulsions.

220. Sources of danger.— The source of danger in wounds is to be found either in the direct effect of the wound itself, or in the results which follow in the course of the wound. As direct factors we may group (1) the mechanical injury to, or destruction of, organs such as the heart, lungs, or brain, which, when interfered with, lead to immediate death; (2) injury to blood vessels, which brings on death by loss of blood; and (3) injury to the nervous system, which produces death by shock. Of the indirect factors, one of equal rank, if not of greater importance than any of the direct sources of danger, is infection of the wound with disease-producing germs. Of great importance also are fat embolism and the surgical procedure necessary for the proper treatment of the injury. Further removed, but still as distinct sequelæ of the injury, must be considered traumatic neuroses, epilepsy, diabetes, nephritis, floating kidney, sarcoma, epithelioma, etc.

221. Direct sources, in general.— As direct sources of danger, injury to the special organs will be considered in the sections on wounds of the special regions of the body.[16]

222. Exhaustion.— In general we may note here the instances of prostration or death from a large number of trifling wounds, no one of which was attended by any serious danger. Death in such cases takes place rather from exhaustion and terror than from the momentary shock of the injury. Examples of this mode of death have been seen after severe flogging ordered by military authority.[17]

[16] Casper's Vierteljahrschrift, 1852, Bd. 1, H. 1.

[17] See Lancet, London, 1846; an account of a case at Hounslow. A case of epilepsy and one of congestion of the brain, produced by this brutal punishment, are recorded by Dr. Davidson, Med. Times and Gaz., Dec. 1853, p. 623. In April, 1860, a boy of fifteen died at Eastbourne, England, from the effect of blows upon his back and legs, inflicted by his tutor with a skipping-rope with wooden handles, and with a thick walking-stick. This punishment was resorted to as a means of conquering the boy's obstinate and perverse disposition, and obliging him to learn. Id., May, 1860. It is evident that the boy was insane.

Dr. Taylor (Med. Jur., 6th Am. ed., p. 254) says: "In death from severe flagellation blood may be effused in large quantity beneath the skin and among the muscles; this effusion will operate as fatally as if it had flowed from an open wound."

A painfully interesting chapter on the cruelties and injuries inflicted upon children has been written by M. Tardieu. (Ann. d'Hyg., Apr. 1860, p. 361.) These are as various in their character as the instruments which are employed: cuffs, blows, kicks, stripes, and bruises from rods, cords, thongs, whips, clubs, forks, shovels, tongs, and every variety of instruments. Sometimes children are dragged, pinched, or have their flesh torn; they are deprived of all means of cleanliness, coarsely fed or starved, hid away in dungeons, closets, or boxes; exposed to icy cold or tortured with hot coals, or iron, or corrosive liquids; their limbs are mutilated, the ears and nose

223. Hemorrhage.— The hemorrhage that follows injury to the blood vessels is dangerous in proportion to the quantity of blood lost and the suddenness with which it escapes, as determined by the vessel which is injured. A person may sustain an enormous loss of blood, provided that it ooze slowly from the body; while a far smaller

lacerated, or the hair torn out; or they are suffocated with food, or are obliged to swallow the most disgusting and loathsome substances.

The victims of these cruelties are generally very young. In seventeen out of thirty-two cases, they were under the age of five years, and in seven cases, from five to ten years old. In nearly all the instances the cruelties were inflicted by the parents; eleven times by both together, eight times by the mother and five times by the father only, four times by a stepmother, four times by a school teacher, and once by a woman to whom the child was apprenticed.

Their aspect is generally peculiar: they are pale and thin, and sometimes wasted almost to the bones, with a dull, downcast, saddened look, and a timid manner. The marks of their cruel treatment generally consists of bruises, wheals, and excoriations. The bruises are usually upon the face, limbs, and back, and are peculiar in not generally occupying prominent parts, as they would do if produced by a fall. Their shape is often distinctive, and resembles that of the hand, nails, stick, shoe, etc., which inflicted them; or they are red, oval, and ecchymosed from pinching; present double parallel and bruised lines when produced by blows with a ruler, or the stripes occasioned by a whip-lash, etc.

The wounds are contused, lacerated, accompanied with fracture of bones, or are produced by fire or by corrosive agents; or certain marks, such as deep furrows in the skin, or a permanent stiffness of the limbs, or a deformity of the bones, indicate the use of cords, or the confinement of the body in a constrained position.

In eighteen of the thirty-two cases collected by M. Tardieu death was caused either directly or indirectly by blows or prolonged ill usage, and it is to be observed that the former may be fatal by their direct shock to the nervous system.

As illustrations of this painful subject, a brief notice of two cases contained in the paper above referred to may here be presented.

A father and mother were condemned to hard labor for life upon conviction for having cruelly maltreated their daughter from the age of eight to that of seventeen years. She was incessantly whipped, knocked down, beaten with all manner of instruments, and lashed upon the back with a cat o' nine tails while hung up by the wrists. One night, while she was naked and firmly bound down, her father applied red-hot coals to her back and limbs, renewing them as fast as they ceased to burn; and on the following night, after she had been flogged with the cat, her mother applied a sponge soaked with nitric acid to the wounds. These abominable and unparalleled atrocities were several times repeated, with variations of intenser cruelty. The unhappy victim slept in a chest about six feet long by twenty inches high and twenty-four inches wide, upon a litter of stinking straw, with which after her back had been made raw, they mingled nettles and brambles. In this she was confined by a lid secured by means of a padlock, and only raised enough to permit her to breathe. If it was possible to add anything to these cruelties, it was done by the father of the victim, who addressed her in filthy language, and attempted indecently to touch her person, and finally after binding her firmly with her limbs asunder, he thrust a wooden plug into her genitals. It is remarkable that the girl attempted to explain all of the injuries found upon her person in such a manner as not to accuse her parents.

The remaining case is, briefly, the following. The stepmother of a fine, robust boy, four years of age, suffocated him by forcing food into his throat. The mouth and throat were distended by a compact mass of doughy bread, large quantities of which were also found in the stomach and œsophagus, some portions of it even in the trachea.

quantity, if poured out rapidly from a large vessel, would be fatal. Hence, the cutting of an artery is more significant than the cutting of a vein of the same size; and the slow oozing from the capillaries is still less dangerous. The absolute quantity of blood that can be lost without endangering life is exceedingly variable. The robust, plethoric people are able to lose much larger quantities than thin, anemic persons. Children and aged people do not bear hemorrhage as well as those in middle life. Women during parturition tolerate hemorrhages which, under other circumstances, would probably prove rapidly fatal. Williams says:[18] "The amount of blood lost during a post-partum hemorrhage may vary from 500 to 3,000 cubic centimeters; the latter extreme, however, being usually incompatible with life.[19] Generally speaking, the effect depends more upon her [the woman's] general condition than upon the quantity of blood lost."

For therapeutic purposes it is customary to remove 300 to 500 c. c. and such a loss does not endanger life. In the older records of venesection the quantities of blood removed seem to reach very closely the estimate of the total quantity of blood in the body. In an adult weighing 150 pounds we estimate the total quantity about 184 ounces. Yet Burton describes[20] a venesection removing 122 ounces; Dover,[21] one of 111 ounces and another of 190 ounces. Taylor cites[22] a case of asphyxia in which he produced a successful issue by extracting a gallon of blood in the course of twelve hours. It is needless to note that the popular idea of the quantity of blood lost from a wound is grossly overestimated, the person stating that he has lost a pailful of blood when he sees a pailful of water discolored by the blood, and when he has lost, perhaps, an ounce or so.

223a. Bleeders.— If no large vessels are cut in the wound, the bleeding is, as a rule, proportional to the size of the wound. But in a certain class of people, popularly called "bleeders," the quantity of blood lost from even the slightest wounds may be so great as to be alarming or even dangerous to life, as it is exceedingly difficult to make the blood clot. Surgical operations on such persons are associated with the same danger, and should not be undertaken, according to the general consensus of medical opinion, except in cases of danger threatening life. The diagnosis of this disease, hemophilia,

[18] Williams's Obstetrics, p. 727.

[19] Ahlfeld cites a case where the loss of 3,000 c. c. did no harm, and another where the loss of 1,500 c.c. was fatal. Zeitschr. f. Geb. u. Gynäk., Vol. LI., No. 2, 1904.

[20] Burton, American Medical Repository.

[21] Dover (Thomas), The Ancient Physician's Legacy, London, 1762.

[22] Taylor, Lancet, London, 1827. p. 718.

can not be made except from the history of bleeding after previous cuts, though it may be suspected in the male members of a family any of which have a history of being bleeders.

223b. Internal.— Bleeding without any external wound may go on to such an extent as to threaten life. Such hemorrhages usually take place into the large cavities of the body. If the bleeding is into the abdominal cavity, there are usually no signs except those due to the loss of blood. If into the cavity around the lungs, there may be no other signs, but usually there are signs of compression of the lung. If the bleeding is into the pericardial cavity there are the signs of interference with the action of the heart; and if into the cranial cavity the signs of the bleeding are secondary to those of compression of the brain or the apoplexy.

224. Post-mortem indications as to hemorrhage.—Where death has resulted from hemorrhage alone, the fact is usually indicated by the pallor of the skin, the absence of cadaveric blotches, and the paleness of the internal organs. Putrefaction occurs also later than usual. These appearances will be found more marked in those cases in which the hemorrhage has gone on slowly and to a greater degree.

225. Shock.— Death may also be due to the shock associated with the injury. The possibility of a person dying from the shock attendant upon an injury which, by itself, appears to be unimportant, is attested by experience. No satisfactory explanation of the cause of shock seem to have been found, though it is due in some way to the upsetting of the nervous equilibrium of the body. Shock from an injury may be fatal even when the blow leaves no trace behind it; as, for instance, when a person receives a violent blow upon the pit of the stomach, or behind the ear, or to the larynx.[23] On post-mortem examination there may be found externally but slight marks of contusion, and internally neither laceration, fracture, nor hemorrhage by which the cause can be brought into any apparent relation with the fatal result. Beck cites[24] the case of "Mr. Lambert, a respectable individual of New York, who received a blow on the stomach from some rioters, immediately after coming from a supper party. He died almost immediately. On dissection no mark of injury could be discovered, except some small red spots on the internal surface of the stomach, and there were no marks of external contusion. The brain was healthy. Dr. Post and other witnesses concurred in believing

[23] For shock after injuries to the larynx, see Krankheit des Halses, in Billroth's Handbuch, Vol. III., Pt. I., p. 58.

[24] Beck, Med. Jur., Vol. II., p. 337.

that the blow was the cause of death, and not sudden fright. The prisoners were convicted of manslaughter." Similar cases are reported by Sir Astley Cooper, and Mr. Wood.[25] In the case of *Reg.* v. *Slane et al.*,[26] the deceased had received injuries to the abdomen by kicks and blows, but there were no marks of bruises present, or anything to show the cause of death. Death, however, had followed twenty minues after the maltreatment, and was evidently due to the shock. The prisoners were convicted of murder. A similar case was that of *Reg.* v. *MacGowan et al.*,[27] where the deceased died four days after the assault. The examination showed injuries, but none sufficient to account for the death; and yet a verdict of murder was brought.

226. Abnormal conditions.— Sometimes a wound which, under ordinary circumstances, would not be fatal, becomes so in consequence of the existence of some abnormal or diseased condition of the body. The cases which fall in this category are exceedingly numerous. An undue thinness of the skull, a displacement of the viscera, an abnormal distribution of the arterial trunks, an aneurism, a hernia, and many other similar defects may prove the occasion of a wound being rapidly fatal, when otherwise it would not necessarily have been so. Thus, if a person have an aneurism of the aorta in the chest or abdomen, and be struck with a certain degree of violence over these cavities, he may suddenly die from a rupture of the aneurismal sac, caused by the blow. Or if he have at any time been subjected to the operation of trepanning; by which a portion of the skull is removed, which is not again reproduced, a blow or wound on this part will necessarily prove eminently dangerous.[28] A constitutional disposition to hemorrhage upon slight causes has often brought on a fatal termination in trifling wounds.[29] It is hardly necessary to state that old age, infirmity of any kind, or that even a highly excitable condition of the nervous system, may rapidly accelerate the approach of death. Similarly in persons with a lymphatic diathesis (the condition known as lymphatism), even slight injuries seem to be associated with special dangers, as the body seems incapable of resisting disease or injury as much as normally. It is in this class of cases that the majority of deaths from chloroform in children occurs, and the subjects

[25] Med. Gaz., Vol. XLIV., p. 213
[26] Durham Wint. Ass., 1872.
[27] Leicester Ass., Nov., 1877.
[28] See Hinze, Hufeland's Journal, 1819, p. 79.
[29] See Beck, Vol. II., p. 295.

are especially prone to fatal collapse under ordinarily very inadequate exciting causes.

It is also important to remember that, owing to internal disease, death may occur during a quarrel, although no blow may have been given. One such example is noted[30] in a case where two women were in a violent altercation, when one was seen suddenly to fall dead. On examination she was found to have died of congestion of the brain. Yet, but for the witnesses of her mode of death, her adversary might have been suspected of dealing her a fatal blow.

Wounds inflicted on pregnant women obviously render the prognosis graver in that they affect the life of two individuals, and also, by interfering with the normal course of the pregnancy, endanger the life of the mother. Under such circumstances wounds which involve the abdomen, especially those which do violence to the uterus, are of extreme gravity. The amount of violence necessary for the production of abortion, or of death to either mother or child, is of great variation. An instance is cited of a woman gored by a bull, the uterus being ripped open so that the child escaped through the tear in the abdominal wall; and yet both mother and child were saved;[31] but such cases must be most exceptional.

227. Indirect sources of danger; infection.— Of the indirect sources of danger from wounds, by all odds the most important is that of infection with pathogenic organisms. On the entrance of these organisms depends the local suppuration in the wound and the general symptoms due to the absorption of the products of these germs, or the distribution of the germs themselves throughout the body. So that we see, as results of wound infection, many different types of disease, from the virulent sepsis or blood poisoning of the streptococcus pyogenes, to the slow and lasting infection with the unidentified virus of syphilis. As the common varieties of infection may be mentioned sepsis and pyemia, or general blood poisoning, tetanus or lockjaw, erysipelas, hospital gangrene, diphtheria, tuberculosis, syphilis, anthrax, and hydrophobia.[32] Each type of infection depends upon the specific germ inoculated, and runs its own

[30] Prager, Viertljhrs., Vol. LXVI., p. 26.

[31] See Piguë, Arch. Gén. de Méd., July, 1836, and also Thatcher, Edinb. Monthly Journ. Med. Sci., July, 1850, p. 88.

[32] For the relation of infection to trauma, especially tuberculosis, see: Salis, Dissertation, Bern, 1881, Die Beziehungen der Tuberculöse zu Traumen des Schädels; Lacher, Friedreich's Blätter, 1891, p. 321; Grasser, Wiener med. Presse, 1893, No. 42, Unfall als Ursache von Enzündungen und Gewächsen; and Guder, Ueber den Zusammenhang zwischen Traumen und Tuberculöse, Vierteljahrsch. f. gericht. Med., 1894, VIII., 1 and 2.

characteristic course, for the description of which reference should be made to any authoritative text-book on surgery. Under any ordinary circumstances outside of surgical operations, the responsibility for such an infection can not be laid upon the one who inflicts the wound, as the disease germs are widely spread throughout the air, earth, water, and other substances that come in contact with the wound under normal circumstances. Intentional infection of a wound is such a barbarity that it is not deemed honorable even in wars between nations, and could be brought about only in exceptional cases without access to scientific laboratories, or without at least scientific knowledge.

228. Fat embolism.— Fat embolism[33] is a rather infrequent sequel of injury to some fatty tissue, most frequently the marrow of a bone after fracture, also after heart, kidney, and arterial disease, in suffocation and burns. In these cases bone injuries which in themselves do not seem in any way to threaten life may become mortal wounds, in that small particles of fat get into the blood vessels and are carried to the smaller vessels, where they lodge and obstruct the blood supply to that part. As these fat masses usually lodge in the lungs, their lodgment interferes with respiration, and not infrequently causes sudden death. This outcome is so far from the usual one following a fracture that it can not be said to be an expected consequence.

229. Surgical interference.— The dangers involved in the surgical treatment of major injuries often cannot be differentiated from those arising from the wound itself. The difficulty is not so great where the original wound has been trifling, chiefly because its comparatively innocuous character can be clearly shown. Thus, for instance, if the hand has been wounded and one of the arteries divided, compression may be necessary to arrest the hemorrhage. But if a surgeon, with this view, should apply a bandage so firmly, or leave it on so long as to cause mortification of the part, and death should ensue in consequence, it would be evident that the treatment had not only been unskilful, but that it had really been the cause of death, since the wound of the hand was neither, in itself, mortal, nor would it have produced death in the manner described. But, in severe injuries, in which various complications arise and require the exercise of the greatest skill that learning and experience can give, it cannot be expected that some will not terminate fatally, which, perhaps, under

[33] See Friedreich's Blätter f. gericht. Med. 1898,—an article by Carrara.

more favorable circumstances, or a better plan of treatment, might have had a fortunate issue. The most humble surgeon may chance to receive the charge of an injury which calls for the enlightened tact and experience of a highly educated man; if his treatment should not prove successful, he should be prepared to show, if required, that his patient had the best care which he was able to afford him, and, if possible, that he consulted with one or more colleagues respecting the treatment. In the language of Judge Woodward: "The implied contract of a physician or surgeon is not to cure,—to restore (*e. g.*) a fractured limb to its natural perfectness,—but to treat the case with diligence and skill. . . . He deals not with insensate matter, like the stonemason or bricklayer, who can choose their materials and adjust them according to mathematical lines, but he has a suffering human being to treat, a nervous system to tranquillize, and a will to regulate and control." [34]

229a. Method.— Death, indeed, sometimes takes place during or immediately after surgical operations undertaken for the relief of the wounded person. The question of responsibility in this case belongs to the legal portion of the subject. It may not, however, be out of place to remark that the surgeon can seldom foresee, with confidence, the issue of capital operations, for there are many individual peculiarities and causes beyond his control, which may make it unfavorable. It is customary for the surgeon, before undertaking any major operation, to inform either the patient or his friends of the usual mortality of such operations, and the probable outcome of this particular one, as he estimates it. Such a preliminary statement, if cautiously made, prepares the patient for the accident which cannot be foreseen, and leads to harmony rather than lawsuits that arise out of misunderstandings. The uncertainty of outcome is present in any plan of treatment, whether it involves a serious operation or not. The question may arise, whether the surgical treatment employed was the best that could be devised, and whether, had some other course been pursued, a favorable result might not have been obtained. Or, it may be alleged that the treatment was so unskilful, or the patient so much neglected, as to be the occasion of the fatal termination of the injury. That these facts should be established beyond dispute, it ought to be shown that the treatment was marked by the omission of something universally recognized as of primary importance. But, as every surgeon has some peculiarities in his practice, and as the mode of treatment of bodily injuries, from the progressive nature of

[34] *McCandless* v. *McWha*, 22 Pa. 261.

the medical art, is various, this omission should be looked for only in those points which betray an ignorance of the fundamental principles of surgery. However much the opinions of competent persons may differ respecting the choice of remedial means, they will generally, we think, be found united upon the principles which should govern their application. Still, occasionally, the plan of treatment may be so singular, although apparently founded upon correct notions of the curative process, as to call for reprobation. Thus, in a case which occurred in Saxony,[35] a surgeon was deprived of the liberty of practising his profession in that country for having attempted to promote bony union between the fragments of a fractured patella, by the novel expedient of firing a pistol between them. Although no permanent injury was done to the patient, who, indeed, a few months after the operation, declared that his leg was nearly as good as the other one, and that he was even able to dance and to walk long distances, yet the medical commission charged with the case very properly considered the operation as likely to prove a dangerous precedent if it were not condemned.

229b. Anesthesia.— In the administration of general anesthetics for surgical work there is always a certain amount of danger from the anesthetic itself. In speaking of chloroform anesthesias in the International Text-book of Surgery,[36] the statement is made that "No blame, in many instances, can be attached to the quality of the agent or to the method of administration. The accident has occurred in the hands of the most careful and experienced of men: Sir James Y. Simpson, the father of chloroform anesthesia, Erichson, Billroth, Volkmann, Syme, Hunter McGuire, Willard Parker, T. H. Hamilton, and many other competent and reliable physicians."

The statistics as to the comparative dangers of the different anesthetics vary a great deal; but, in general, the mortality from chloroform may be taken at about one in two thousand, of ether about one in fifteen thousand, and of nitrous oxid, or laughing gas, about one in two hundred thousand. But the choice of anesthetic depends upon so many factors that it is not fair to say that the one which has the lowest mortality numerically should be used in all instances. Nitrous oxid has many disadvantages for general surgical work, ether, also, is distinctly contraindicated in certain other cases, and, on the other hand, chloroform has many distinct advantages. The recent introduction of local anesthesia has brought forward the possibility of

[35] Casper's Vierteljhrschr., 1852, Bd. 1, H. 1.

[36] International Text-Book of Surgery, Warren-Gould, 1900, p. 445.

doing away with the general anesthetic in many instances, even in some major operations. Within the last few years, too, the injection of cocaine into the spinal canal has been used in cases where the safety of a general anesthetic is very doubtful, but the technique of this injection is still in process of modification to such an extent that, in general, it cannot be considered as safe for persons in good health as is even the most dangerous of the established general anesthetics.

229c. Complications.— After operations, too, in a certain number of cases there is an unaccounted-for confusional insanity, which is, as a rule, of but a temporary character, and needs merely to be mentioned. Of a similar character is the traumatic delirium that follows in a certain number of instances,—likewise a temporary condition. As another complication of operations, or more often of wounds that produce much laceration of tissue, and yet are kept clean and aseptic, is the temporary traumatic fever,—rarely of a severe grade,—not significant except as a complication which might give rise to some misinterpretation of the results of an operation or wound if it were not recognized as of its true character.

230. Remote sources of danger, in general.— Besides these direct and indirect results of injury there are a number of remote effects dependent upon the traumatism for their beginning. Among these may be mentioned the cases of traumatic epilepsy or diabetes following injuries to the regions of the brain or spinal cord and paralysis due to injury of the nerves going to the helpless muscles.

231. Spinal paralysis.— Spinal cord or nerve injuries leading to paralysis of the parts of the body supplied by those nerves are common. Destruction or even compression of the spinal cord regularly produces paralysis of all the voluntary muscles below the level of the injury. For the exact extent of the paralyses reference should be made to any of the standard text-books on nervous diseases, under the heading of paraplegia or transverse myelitis.[37]

232. Epilepsy.— Epilepsy may be a sequel of injury to the skull, or, in rarer instances, to injuries in different regions of the body, in which cases the irritation of the scar or the disturbance of the nervous equilibrium in the remote part of the body produces a reflex nervous discharge in the form of an epileptic attack. One very interesting instance of reflex epilepsy is recorded by Briggs,[38] in which a girl had both a depressed fracture of the skull and disease of the leg.

[37] See Starr's Organic Nervous Diseases.

[38] Briggs' case is quoted in the American Text-Book of Surgery, 4th ed., 1903, p. 608.

Briggs very wisely operated first on the leg; and after five years the epileptic fits had not recurred, showing that their origin was not in the depressed fracture of the skull, which, prima facie, was the probable cause, but in the irritation of the disease of the leg. A very interesting case from the legal point of view is given by Hofmann.[39] A man thirty-five years of age, who had always had good health, on January 1st, 1878, received a blow on the head, sinking unconscious to the ground. He remained unconscious till January 7th, when consciousness returned. He was called well on January 22d, but he had frequent headaches, associated with paleness; later there came intervals of staring and diminished sight. In December of that year he had an attack of mania, lasting five days. On October 26th, 1881, he was found in severe epileptic convulsions, repeated sixteen times in two days. On the 8th of November he had another attack, another on the 9th, and one every day until the 13th, when they were repeated with one hour intervals, and on the 14th of November he died in coma. The autopsy showed no sign of scar on the head, but intracranial lesions, with healed contusions of the cortex of the brain. The causal connection between the injury and the death was clear, and the assailant was convicted of manslaughter, although the death occurred five years after the injury.

233. Diabetes.— Diabetes following trauma is also well authenticated. Brouardel[40] collected thirty-three cases, in some of which the disease began immediately after the injury, and in others not until eleven months later. The acute cases beginning promptly after the injury usually ran a short, hopeful course, and were cured in two or three months. Those appearing later were generally fatal. Thomayer[41] collected four cases where the diabetes was secondary to injury of the abdomen rather than the more common sequence of injury to the brain or spinal cord.

234. Sarcoma and epithelioma.— Possibly, also, still more remote are cases of sarcoma following traumatism; and in cases where the injury leads to an open wound that refuses to heal for a long time the possibility of epitheliomatous changes may be attributed to the injury.[42]

235. Traumatic neuroses.— But the most common, and, perhaps,

[39] See Friedreich's Bl. f. Ger. Med. 1882, p. 440.

[40] Brouardel, Annal. d'Hyg. Pub., 1888, XX., 401.

[41] Thomayer, Wiener med. Presse. 1889, No. 34.

[42] For the relation between trauma and the development of malignant growths, see: Grasser, Wiener med. Presse, 1893, No. 42; and Cremer, Würzburger Dissertation, 1885. Cremer describes one case of carcinoma of the kidney after a fall, and cites fifteen other such cases.

the most elusive of the sequelæ of injuries are the traumatic neuroses, using the term in the broad sense to include the various functional disorders of the nervous system which follow injury,—those due to injuries received in railroad collisions, local injury to the head and back, and to fright or anxiety, if this last group, without any bodily injury, may be included in the results of traumatism. There is an excellent chapter on this subject in the International Text-book of Surgery, by Dr. James J. Putnam, professor of nervous diseases at the Harvard Medical School, with citations of numerous medico-legal cases that have come under his care or have been recorded by others. He groups the symptoms as first, those of shock; then those due to the impaired innervation of organs which have not been injured, and then symptoms of a hysteroid nature. The outcome of such cases, especially where there is a legal complication, is very doubtful, "as the mere fact that a litigation is pending makes it difficult for the patients to avail themselves of the precious opportunity, in the early stage of their illness, for reasserting their self-control. If such persons could be assured that health would speedily return, provided they brought no suit, or if they could settle their claim at once for a moderate sum, they would often be glad to do so. But this assurance cannot be given, and so delay is advised. Meanwhile, the consciousness that a suit is pending makes it much harder for even the most conscientious person to adopt the mental attitude necessary for recovery so fully as to insure success; and very soon the invalid habits have tightened their grasp so strongly that no ordinary measures can relax them. . . . . In general it may be said that when a trial is concluded the patient ordinarily improves more rapidly; but this is not true of all symptoms.

"Hysterical paralyses, which often count for so much in court, are far more likely to pass away quickly than the impairment of mental balance and nervous strength; and thus the lawyer and prejudiced physician unjustly count many patients as simulants because they soon leave off their crutches, when, in fact, they may still be far from well."

235a. Railway spine.— The one of the traumatic neuroses that has received the most attention, possibly, is "railway spine."[43] Here there may be no, or very slight, evidences of injury immediately after the accident; but later there appear, and gradually increase in

[43] For the more detailed accounts of these conditions, see Vibert, Précis de Médecine Légale, 4th ed., p. 311.

intensity, the symptoms due to the disturbance of the nerve supply to various organs,—insomnia, headache, psychic troubles, disturbances of memory, of emotions, of vision, often coming in crises brought on without any apparent cause. Disturbances of digestion are very common. In many cases there develops a marked tenderness of the spine, which is very painful on pressure or on motion. The prognosis of these cases is bad in proportion to the slowness of development and the intensity of the symptoms. The severe cases may last indefinitely.

III. Homicidal, suicidal, and accidental wounds.

236. In general.— To obtain a satisfactory solution of the question as to whether a wound found upon a dead body was of accidental, suicidal, or homicidal origin, much depends upon the evidence of the circumstances under which the wound was inflicted, and it is a legal rather than medical consideration. A few *a priori* considerations may not be out of place, however, before considering the results of the examination of the body. Hofmann[44] gives statistics of suicides in Germany, showing distinctly the prevalence of suicide during the active years of life, but with about 1 per cent after eighty years of age and about 5 per cent before twenty years of age (he cites one instance of suicide in a boy of seven years of age); and shows that about one fourth of suicides occur in women. As to the mode of suicide and the proportion of men to women in each mode, Vibert gives statistics[45] from the French record from 1887 to 1891, showing, in general, the following percentages:

Mode of Suicide.	Per cent of Total.	Per cent Males.	Per cent Females.
Hanging	43	86	14
Drowning	26	67	33
Shooting	12	96	4
Coal gas poisoning	9	60	40
Poisoning	2	52	48
Various methods	8	..	..

Suicide in children is usually done by hanging, in the case of boys, and in the case of girls by drowning, or throwing themselves out of the window.

237. Situation of wound.— The situation of the wound may point

[44] Hofmann, Ger. Med., 1903. [45] Vibert, Précis de Méd. Lég., 1900.

to its suicidal or homicidal origin. Suicidal wounds are inflicted upon those parts of the body most accessible to the hand: such as the head, neck, and anterior part of the trunk. They are usually either made by firearms or by cutting instruments. If by fire arms, most frequently in the head, or over the heart; if by cutting instruments, the throat is the most frequent site of the wound. If, therefore, a wound is found upon some part of the body which it is manifestly impossible for the suicide to reach, this circumstance, in connection with the direction of the wound, will make the intervention of another person or the occurrence of accident evident. Yet, as in the greater number of all wounds the situation is such that the wound could be self-inflicted, the locality of the wound alone affords merely, at most, a presumption as to the mode of origin. Moreover, it must be remembered that all suicidal wounds are not inflicted by means of the hand, but sometimes by violently striking the body against some solid substance by precipitation from a height, and by various other means,—especially in persons of deranged intellect, who not infrequently contrive to mortally wound themselves in such a manner as would hardly be thought of by another. Dr. Pope reports[46] a case of attempted suicide where the man, an inmate of a jail, drove a 3-inch wire nail into his head in the median line, 6½ inches back of the nasal eminence. Mr. Tarleton reports[47] an instance of an insane gentleman who was found lying insensible in his kitchen, with a cleaver by his side. Upwards of thirty wounds were found over the occipital bone; they were horizontal, many of them superficial, but one of them had removed a portion of the skull from the middle of the lambdoid suture, so that the brain had escaped. The man, who survived his injuries four days, admitted that he had inflicted them himself. Suspicion of criminal violence would, very naturally, be entertained in such cases as these, provided the body was accidentally discovered in a deserted place.

238. **Direction of wound.**—The direction of the wound will more frequently serve to distinguish a homicidal or an accidental wound from one which has been self-inflicted. Thus, on the trial of Mrs. Mackin, in Edinburgh, in 1823, for murder, it was stated in the evidence that the deceased died from a stab. The prisoner alleged in her defense that she merely held the knife in her hand, sloping upwards, to deter the deceased from attacking her; but that he, being drunk, stumbled forwards upon it. This state-

[46] Pope, Journ. Amer. Med. Ass., Mar., 1904, p. 649.

[47] Tarleton, Taylor, Med. Jur., p. 191.

ment was disproved by the medical testimony, which showed that the direction of the stab was backwards, and very much downwards in the lungs, having penetrated the chest over the cartilage of the second rib.[48] A similar instance is given by Elvert, in which the downward direction of the wound, and its having been made in the manner of the German butchers, *viz.*, a second internal wound after a partial withdrawal of the instrument, not only disproved the accidental origin of the wound, but indicated also the occupation of the murderer.[49] In England, a few years since, a murder was fixed upon a man from the fact that the wound in the neck of the deceased had been evidently made by a knife cutting from within outwards, as is done in slaughtering sheep. In cases of stab wounds, in which it is claimed that the dead person threw himself upon the weapon, such an assumption could not hold if the direction of the wound through the skin were oblique; nor could it hold if the wound penetrated deeply, unless it could be shown that the weapon had been held firmly in place.[50]

The direction of suicidal wounds is subject to too much variety to be relied upon as a criterion, for although in many cases we may obtain from it a presumption that the wound was voluntary, yet it is evident that a wound inflicted by a murderer may assume any direction which could possibly be given to a suicidal wound. Besides, the deceased may have been left-handed or ambidextrous,—a consideration of some importance in this relation. In short, but little information of value can be obtained from the direction of a wound, unless the circumstances under which it was received are known; hence, its chief importance is in corroboration of other evidence.

In any case in which a person is found lying dead or dying from wounds or other bodily injuries, an accurate inspection of the locality and of the position of the body in respect of surrounding objects is of the highest importance, and should be minutely noted before the body is removed.

239. Circumstantial evidence.— That part of the circumstantial evidence which requires medical knowledge for its elucidation is often most curious and important, and as it has to deal with conditions incessantly varying, and is founded upon no familiar principles, nor any positive scientific basis, but rather upon loose and badly observed facts, must partake of the same nature, and often

[48] Christison, Month. Journ., Nov., 1851, p. 401.

[49] Kopp's Jahrb., I., p. 143.

[50] The uncertainty of the inferences to be drawn from the course taken by shot in the human body is discussed in Wh. Cr. Ev., § 771. See also § 215a, *supra*.

appear discordant and improbable. Each medical witness may put together in a different manner the materials with which he is required to reconstruct the scene immediately preceding death; and a successful result will most naturally reward him who, with the most acute perception, unites the largest and most familiar acquaintance with similar facts. In estimating the probabilities in reference to the manner of death, the physician has need of all aid which a general observation of the workings of the human mind can afford him; his psychological knowledge and his medical experience must here go hand in hand, for it is his task and duty to offer an explanation of the mutual dependence of motives and results, and that, in the same disinterested and merely scientific manner that would be required in the demonstration of any curious facts in physics.

That portion of the indicatory evidence upon which medical testimony may possibly throw some light, we may now cursorily allude to.

240. Position of body.— The position of the body and that of the weapon (if the latter be found) sometimes throw light upon the mode of death.

These two circumstances serve also, generally, to explain each other; separately considered they are not of so much importance. In cases of suicide the weapon may be found grasped in the hand or not, according to the manner of death. Thus, if death ensue upon sudden and abundant hemorrhage, as in wounds of the throat, stabs in the heart or great vessels, the person dies of syncope, and hence, the hand being relaxed, the weapon falls from it. When, however, death is occasioned by a pistol-shot through the head, the weapon may, in cases of suicide by this means, be found firmly grasped in the hand. In other cases, where death has not been immediate, it is purely a matter of accident whether the weapon be still held by the deceased or not. In like manner, the position of the body will be affected by the suddenness and mode of death. Where death is sudden, the body will usually be found lying upon the back; but if it has not been immediate, the face and trunk will generally be turned to the ground. The position of the body alone cannot be considered as indicative of the voluntary, accidental, or homicidal character of the injury, but if it be found in a position indicating immediate death from hemorrhage or from the instantaneous loss of muscular power, and the weapon be found at a distance from it, the act may be considered in all probability as homicidal. Where, on the contrary, it is found in this position and the weapon by which death apparently was caused lies close to the body, it is impossible, of course, to de-

termine whether it has been placed there by another after assassination, or has fallen from the hands of the suicide. Should the weapon be found firmly grasped in the hand of the deceased, there can be little doubt that the act was suicidal. The only objection which can be made to the supposition is, that it might have been placed in the hands of the person before life was extinct, and instinctively grasped by him. Where, after death by assassination, a weapon is placed in the hand of the victim, it cannot be forcibly grasped, but will lie there loosely. Sometimes the fact of the razor being shut (when this has been the weapon used) has been considered as indicative of homicidal interference; but such an inference is not justifiable, unless it can be shown from the position of the body and the character of the wounds, that death must have been instantaneous, and even here the question might naturally arise whether the fall of the razor to the ground might not sufficiently account for its being closed. Thus, for example, in a case of suicide related by Dr. Casper,[51] the man, after having first inflicted, with a razor, some superficial wounds at the bend of both elbows, stood before a mirror and, drawing down his cravat, cut his throat in an oblique direction from left to right, dividing the larynx and both external jugular veins. The razor was found bloody and closed, two feet distant from the body. The same author reports another case of suicide by a pistol-shot in the breast, traversing the diaphragm and spleen, and subsequent drowning. In this case the pistol was found in the pocket of the deceased, and the fact of its having been fired against the naked chest was shown by the circumstance that his coat and shirt were not perforated, and the former was buttoned up to the chin.

The following case illustrates the nature of the difficulties which sometimes environ the questions treated of in this chapter. At Paris, in 1858, an auctioneer and appraiser, thirty-one years of age, arrived at the Lyons railroad station, about six o'clock in the morning, and, having engaged a coupé and placed his luggage upon it, entered the vehicle, carrying a double-barreled fowling-piece in his hand. At some previous period he had been twice convicted of official misconduct, and his present position was not a prosperous one; but there was nothing to indicate his being humilitated or desperate; on the contrary, his habitual behavior was gay and even frivolous. On the way to its destination an explosion was heard in the carriage; it was stopped and the body of the occupant was found

[51] Gericht. Leichenöff. Ites Hund., p. 17.

seated in the left-hand corner, the legs crossed, and in the posture of a person seeking repose. The greater portion of the left side of the skull from the centre of the forehead was carried away; the legs were crossed, and between them lay a cane and a double-barrelled gun, the left barrel of which was still loaded and cocked. The thumb and index finger of the left hand were bloody, and the fingers clenched. Within the skull were found numerous grains of shot. The deceased had, several months before, insured his life for about $30,000, which sum the insurance company refused to pay to his family, on the ground that his death was suicidal. Hence a lawsuit, in which the facts of the case were investigated. It was evident that at the moment of the explosion the forehead must have been upon or very near the muzzle of the gun, which was also grasped by the left hand. From these facts, M. Tardieu concludes that the death was suicidal,[52] and M. Brierre de Boismont draws the same inference, chiefly from the fact that there was no evidence of a previous inclination to this crime.[53] The court, however, condemned the insurance company to pay the amount of its policy. To us it seems perfectly natural that a sportsman, weary with a night's ride in a railroad car, should, when seated in a hackney-coach, have leaned his head upon the muzzle of his gun, embracing but not covering the end of the barrel with his hand, and that a jolt of the vehicle should have caused the trigger to catch in his pantaloons and explode the charge. Too many accidents of a similar nature have occurred, displaying an almost inconceivable negligence of the simplest precautions in handling firearms, for us not to adopt this conclusion in the present case as not only the most charitable, but also the most logical.

241. Mode of death; throat cutting.— Traumatic suicide is most often accomplished by cutting the throat, the person standing or sitting in front of a mirror. Very rarely is the person lying down. The cut is, as a rule, made with the head extended, the knife in the right hand. The cut begins above, on the left sternomastoid muscle, and cuts down and across. It may be transverse, or, if the knife is held in the left hand, the wound may slope in the other direction. Hofmann considers[54] that the vast majority of the cases show the wound to be between the larynx and the hyoid bone; rarely above the hyoid or over the trachea. The depth of the wound depends upon the strength of the hand and the sharpness of the knife. It is usually deeper at the point of insertion. Unless it is pretty deep the great

[52] Ann. d'Hyg., Avril. 1860, p. 443.
[53] *Ibid.*, Juill., 1859, p. 138.
[54] Hofmann, Ger. Med., 1903, p. 395.

vessels of the neck are not cut. Usually the wound involves, of the blood vessels, only the superior thyroid artery and the external jugular vein; while the big vessels—the carotid arteries and the internal jugular vein—escape uninjured. The small vessels, however, are effective in causing death in many cases, either from the loss of blood, or the entrance of blood into the air passages, or possibly from the aspiration of air into the veins of the neck. The wounds in the neck are often multiple or associated with cuts at the blood vessels in the bend of the elbow or the wrists.

In the cases of homicide by cutting the throat, which are not rare, on account of the ease with which death can be produced during sleep or unconsciousness, a single stroke is more often effective than in suicide. The appearance of the wound may not be characteristic, but is likely to extend so far to the right as to bear evidence of a stranger's hand. Resistance is usually shown by cuts on the fingers or in the palm of the hand. The finding of a knife in the hand of the dead man is more frequent in cases of homicide than of suicide.

241a. Gunshot.—Suicide by a gunshot wound has little that is characteristic in the appearance of the wound except the powder marks that are characteristic of all such wounds when the muzzle of the gun is held close to the body. The instrument generally used is a pistol or revolver, and the bullet may be identified as coming from such a firearm. The most frequent sites of such injuries are about the head, the forehead, temple, behind the ear, or in the mouth. If the clothes have been pushed away from any portion of the body, and the muzzle of the gun has been applied directly to the skin, the probabilities of suicide are much greater than of homicide, where such a preparation for the shot is rarely possible.

If the shot wounds are multiple there must have been life enough after the first shot to allow of the subsequent ones. Some of the instances of multiple injuries in known cases of suicide are most astonishing, in showing how much can be done after a wound that is generally considered as promptly mortal. Hofmann,[55] cites a case of two shots in suicide, one penetrating the right side of the heart, and the other the left side of the heart. He also cites another instance of five shots, one a nonpenetrating wound of the skull, situated over the glabella, a second starting from the right zygoma, and cutting both of the optic nerves in their orbits, and then three around the heart, one of these through the left lung, one through the thoracic aorta, and one through the left ventricle of the heart. In

[55] Hofmann, Ger. Med., 417.

this case the shots in the head evidently had preceded those in the region of the heart. Naegeli[56] reports a case of two penetrating wounds of the skull: the first going from the left supraorbital notch, through the frontal and parietal lobes of the brain; the second, from below the angle of the left eye backwards and slightly to the right of the occiput.

As pointing, also, to suicide, may be the multiple modes of ending life; as in the cases where, combined with some of the distinctly traumatic methods, there are also evidences of poisoning, hanging, or drowning.

IV. Ante-mortem versus post-mortem wounds.

242. In general.—In many cases it is desirable to know when the wound was inflicted,—whether it was inflicted ante mortem or post mortem,—and, if it was inflicted ante mortem, how long before death, or before the time of examination.

243. Ante-mortem open wounds; hemorrhage.—Fresh, open wounds inflicted upon the living body show a distinct gaping of the edges of the wound, with a protrusion of the underlying structures. At first there is an active bleeding, depending in its character upon whether a large blood vessel or merely the small capillaries have been severed. If only the capillaries, there is an oozing of the blood more or less rapidly; but in all large injuries large blood vessels are also injured. If an artery is cut there is profuse and rapid hemorrhage, on account of the great pressure under which the blood circulates in the arteries. Moreover, if this arterial stream can escape freely to the surface, without impinging upon the edges of the wound, it will be seen to escape in rhythmic jets, which, if they fall upon the wall or clear floor, may leave the tracing of the jets in drops of blood which is characteristic of arterial hemorrhage. If a vein is cut the bleeding is also profuse, but there is not so great a loss of blood as from an artery, nor are there the tracings of the jets of blood. As the blood remains in contact with the tissues there is a diffuse infiltration of the edges of the wound with blood, so intimate that the blood can not be washed off. Then, as the blood clots, it becomes intimately adherent to the edges of the wound.

243a. Clotting.—The clotting in normal blood begins in about three minutes after it is shed, and is complete in about eight minutes. The evidence of the infiltration of the edges of the wound and the

[56] Naegeli, Vierteljhrschr. f. Ger. Med., 1884, XLI., 231.

intimate clots may be absent in cases where large vessels are cut and the blood spurts free from the wound, as in the cases of infants killed by cutting the neck through at one stroke. The hemorrhage is also slight in punctured and in lacerated wounds, and in those inflicted by firearms. Similarly, wounds which have followed previous marked loss of blood, as after parturition, or possibly second to wounds of the heart or aorta, or in cases of shock, as after traumatism to the central nervous system, may be associated with comparatively slight hemorrhage. Clots that are formed in layers (laminated clots), showing that after the first portion of the clot was formed there was further bleeding, are also characteristic of hemorrhage during life.

243b. Healing.—After the immediate results of the injury are passed, the wound tends to heal either by what is called primary intention, as is seen in the cases of aseptic wounds, in which the edges of the wound are kept in contact, and in which there is no appreciable quantity of pus formed. In these, healing takes place in the course of a week or ten days to such an extent that there is little chance of the wounds breaking open under ordinary circumstances. If the edges of the wounds are not kept in contact, or have become infected, the edges of the wound gape and the wound heals by granulation or secondary intention. In these cases, which include the majority of nonsurgical wounds, the edges of the wound remain bloody for eight to ten hours, and then there is a swelling of the edges, due to the inflammation. For thirty-six to forty-eight hours there is a serous secretion that, on the third day, becomes purulent. On the fourth or fifth day suppuration is fully established, and this purulent discharge continues for from five to eight days, then a fibrous layer appears at the edge of the wound: first soft, due to the young epithelium, then becoming firmer, and hardening into the cicatrix or scar. Healing is complete in twelve to fifteen days, providing that the vitality of the body is good, and there has been no marked loss of substance. The process is prolonged in cases where there has been a distinct loss of tissue, where the vitality of the individual is below normal, and where there remains any foreign material in the wound, or where the edges of the wound are kept in motion, and not allowed to remain as much in contact as they should.

243c. Scar.— The scar which follows the healing of a wound is distinctly red at first, but after an indefinite time, measured by months or years, becomes white, hard, smooth, shining, less sensitive

than at first, and gradually decreases in size[57] (except in the peculiar abnormal condition of scar hypertrophy, known as keloid). The scar does not disappear with time, though it does become less prominent. Taylor quotes[58] the case of a man whose identity hung upon the presence of a wen on the hand. As neither wen nor scar could be found the identity of the man was not allowed.

244. **Ante-mortem subcutaneous wounds; ecchymoses.**—In the subcutaneous wounds and, also, to some extent, in the open wounds, there is a distinct discoloration of the skin, due to the effusion of the blood under the skin, and the changes which take place in that extravasation. Such an effusion of blood, with the associated discoloration of the skin, is called an ecchymosis or suggillation. If the extravasation be deeply seated, the external discoloration will not occur immediately, but may be delayed even for several days, and may not even correspond to the spot at which the injury was received, but will be found over that part to which the effused blood has gravitated. Indeed, the cutaneous discoloration may not appear till after death. Thus, in a person who died thirty-five hours after having received a kick from a horse, rupturing the bladder, there was no ecchymosis at the seat of the blow until after death. Likewise the amount of blood extravasated, except it lie immediately beneath the skin, is not proportionate to the amount of the external injury, since in many of those cases of violent death in which a heavily loaded vehicle has passed over the body, or a great weight has fallen upon it, there has been, externally, no discoloration whatever, or such a slight change in color that the vast amount of internal disorganization and hemorrhage could hardly be suspected.

Among numerous instances of this description are those cited from the experience of Casper and Dr. Ellis.[59]

The color of ecchymotic spots[60] varies according to the time that has elapsed since they were produced. At first they are purple, and pass through various shades to black. Then through violet, green, and yellow, fading to the color of the skin, when they disappear. In general the discoloration appears within twelve hours after the injury, and sometimes immediately afterwards. The violet color is seen on the third day and the green from the fifth to the sixth day. The spot completely disappears in healthy persons on the

[57] Vaccination scars and scars in children in general increase in size as the size of the child grows. See Brit. Med. Jour., 1873, II., 774; and Paget's Lectures on Pathology, I., 49.

[58] Taylor, Med. Juris., p. 319.

[59] See § 207, *supra*.

[60] See § 207 *et seq.*, *supra*.

tenth to the twelfth day. The changes are more rapid in the young than in the old, and depend, also, upon the force and extent of the blow.

244a. Ecchymoses from natural causes.—In addition to these discolorations due to injury, mention must also be made, by way of caution, of the ecchymoses from natural causes. It can hardly be necessary to caution the physician against the possibility of mistaking the ecchymoses observed in certain diseases for the effects of violence. The morbid states of the system in which they are seen have so many other striking peculiarities during life and after death, that it would hardly be pardonable for a professional inquirer to overlook or misinterpret them. Thus, in scurvy, purpura hemorrhagica, and petechial typhus, the shape, size, and distribution of the spots in various parts of the body, the absence of swelling or other indications of violence, and the pathological changes in the mucous membrane of the mouth and the intestines, together with the fluidity of the blood, will afford more than sufficient reasons for rejecting all suspicion of violence.

245. Physiological actions before death.—As bearing also upon the time of the infliction of the wounds that cause death must be mentioned two other sets of evidence: One, the actions of the person after receiving the wound; the other, showing what physiological actions have shortly preceded death.

Of the physiological actions that are significant in this connection, the filling of the stomach and the process of digestion are probably the most important. If simple fluids alone have been taken in, they will not be found in the stomach, as they are passed on at once into the intestines. If food has been taken in it will be found to be in some stage of digestion. If only a small quantity has been taken it may also have been passed on into the intestines but the larger masses of food do not begin to be passed on till one or two hours after digestion; and the stomach, as a rule, is not emptied till four or five hours after the meal. Any exact estimation of the time since the food was taken is impossible. We can merely state that digestion has been going on for a long time, or that it has just begun. In all probability digestion that has begun before death continues after death, even though there be no additional secretion of gastric juice.

The condition of the bladder may also be significant. If the person is in sound health and the bladder contains no urine it is evident that the bladder has just been emptied. The filling of the bladder is at the rate of about two ounces in an hour; but considera-

ble variations from this rate are frequent, depending on the activity of the person, the action of the skin, and many other factors. Moreover, it does not follow that, if the bladder is not empty, the person has not just urinated, for the bladder may be but partially emptied, either by choice or because, in certain conditions, it cannot be completely emptied in the usual way.

The condition of the bowels is not so significant, for frequently the emptying of the rectum at defecation is incomplete, and, again, the filling is a much slower process than that of filling the bladder.

The condition of the uterus, whether or not recently emptied of the products of conception, or whether menstruation has just passed, has been considered in the sections treating of the diagnosis of previous pregnancy.[61]

246. Acts after receiving a mortal wound.— The question as to whether a certain act can have been done after receiving a given wound is always one that must be decided upon the merits of each particular case. In speaking of multiple wounds as the cause of death,[62] there have already been quoted a number of instances where, after receiving wounds that are usually considered mortal, other wounds have been inflicted by the person himself. That injuries of the brain, even with destruction of brain substance, are not necessarily promptly fatal, or even fatal at all, is shown by the many cases of recovery from brain injury. Perhaps the most famous of these cases is that of Phineas P. Gage, known as the Tamping Iron case,[63] where the man not only was not killed although the iron was driven through the skull, but he did not even lose consciousness. Likewise wounds of the heart are not necessarily fatal on the spot or even at all. Many such instances of delayed death[64] after non-perforating wounds of the heart are now on record, and several instances of recovery,[65] even after perforating wounds of the heart.

Vibert describes[66] the case of a man who, after being shot in the chest, threw a lamp at his adversary. The lamp started a fire; and, to extinguish the fire, the wounded man fetched a pail of water from the court yard (the man's rooms were on the ground floor). When

[61] See §§ 26 *et seq.*, *ante*.

[62] See § 241a, *supra*.

[63] See injuries of the head, § 283, *infra*.

[64] See injuries of the heart, §§ 283 *et seq.*, *infra*.

[65] See Taylor, Med. Gazette, Vol. VII., p. 82. In von Bergmann and Bull's System of Practical Surgery (1904), Vol. I., p. 410, the following statistics are given: "Fischer calculated that about 10 per cent of the injuries of the heart terminate favorably. Loison reported nine recoveries of twenty-three needle wounds, eleven after stab wounds, but only three after one hundred and ten gunshot wounds. Jamain reports sixteen recoveries of one hundred and twenty-one cases."

[66] Vibert, Précis de Méd. Lég., 4th ed., p. 286.

the fire was extinguished, the man lay down on the bed and died. Vibert performed the autopsy, and found that the left ventricle of the heart had been perforated by the revolver bullet. The bullet was found in the pericardium. The ball had probably remained for a while embedded in the heart muscle, preventing hemorrhage. Otherwise it is hard to understand how the man could have lived so long after the injury, and have done so much.

247. Post-mortem wounds in general.— Wounds that have been inflicted after death naturally show no signs of what is called the vital reaction, *i.e.,* the processes of healing or of suppuration. There is no lymph exudate, pus exudate, or tumefaction of the edges of the wound. The blood which comes out of the blood vessels does so according to the laws of gravity or decomposition, not those of physiology, and therefore there is no spurting of blood from the vessels, and no active bleeding. The quantity of blood that escapes will be distinctly less than that from the wound in the living person. The blood does not so intimately infiltrate the tissues in the edges of the wound and stain them, and the clots of the blood are not so closely adherent to the wound; in fact the blood may not clot at all. The edges of the wound do not gape as widely (unless the wound is inflicted immediately after death), and the deeper tissues do not protrude.

The distinction between wounds inflicted just before or immediately after death is often extremely difficult, if not impossible, especially when death results rapidly by hemorrhage from a large artery or vein. In these cases if a wound is made upon the dead body near to that which occasioned death, and the second wound be made soon after death, it will be impossible to distinguish the one from the other by any characteristic sign. Thus, in a case reported by Casper,[67] in which a woman was instantly killed by a table knife that was thrust through the arch of the aorta, entering the chest between the first and second ribs, the wound presented sharp and smooth edges, without a trace of either fluid or dried blood; in fact it was exactly like a wound made upon the dead body. A case is very easily supposable, in which a wound in the region of the heart might be designedly inflicted after death; as for instance, to divert attention from the real cause of death, which may have been due to poisoning. Although no distinction may be possible from an inspection of the external wound, the absence of internal hemorrhage will, in such an instance, betray the period at which the wound was made.

[67] Gericht. Leichen-öffnungen, 1tes Hundert., Fall. 9, 1853.

248. Appearances.—Dr. Taylor endeavored to solve the question of the differences between wounds inflicted before and after death, in an experimental way. In one experiment, an incised wound, about three inches long, was made in the calf of the leg, two minutes after its amputation. The skin retracted considerably, the adipose tissue underneath protruded between its edges, but the quantity of blood which escaped was small. Examined after the lapse of twenty-four hours, the edges of the wound were found red, bloody, and everted; the skin not in the least tumefied, but merely flaccid. A small quantity of loosely coagulated blood was found at the bottom of the wound, but no clots were found adherent to the muscles. In the second experiment, which was made ten minutes after the limb was amputated, the skin appeared to have already lost its elasticity, the edges of the wound became very slightly everted, and scarcely any blood escaped from it. On examination, twenty-four hours afterwards, the wound presented none of the characters of a wound inflicted during life, except that, at the bottom of the wound, a few coagula were found. Other experiments were made at a still later period after the removal of the limbs, but it was found that the wounds then made possessed still fewer points of similarity with wounds inflicted during life. From these experiments, one fact, at least, may be fairly inferred,—that the coagulation of the blood is not a safe criterion of the time at which the wound was made, but that, as long as the body retains its warmth after death, this apparently vital process may still take place. If, therefore, a wound be made upon a person just dead, it is not impossible that the blood will coagulate in the wound. Facts, more pertinent than the above experiments, are, however, required to establish the fact beyond a doubt, as the accidental determination of the question upon the entire body would be naturally more conclusive than experiments upon separate limbs. On dissecting the body of a person who died of the low typhus fever which prevailed during the autumn of 1847, in a district inhabited by the lowest class of negroes, the blood was quite fluid, although death had taken place but six or eight hours before; but when allowed to stand in a cup, or in the chest whence the lungs had been removed, it speedily formed a dark and moderately firm coagulum.[68] Several cases in which the blood retained its coagulability after death are reported by Casper. In one of these, relative to a man who was suffocated by coal gas, it is stated that four days after death, and during very cold weather in January, the blood

[68] Gericht. Med. I., 29.

flowed freely when the body was opened, but coagulated quite rapidly, and so firmly that the clots could be raised quite easily with the handle of a scalpel.[69] Although the swollen and everted condition of the lips of the wound is a good indication of its having been inflicted upon the living person, this appearance may be removed by causes acting after death. Thus, if the body have lain in the water, this, together with the blood effused in the wound may have disappeared before the inspection is made, by the maceration to which the body has been thus subjected, and it is also often materially changed by the advance of putrefaction, since, by this process, the skin very soon becomes puffy, and many of the relations of the wound are changed. This is strikingly true of fat bodies, in which wounds, and especially incised ones, often assume, when the body begins to swell, an appearance which it is very difficult to distinguish from the effects of the inflammatory process.

249. Hemorrhage.— The amount of hemorrhage is generally a reliable test of the period at which the person was wounded, but is, of course, only applicable in wounds involving a solution of continuity. In those made after death, even while the body is yet warm, the amount of blood poured out will, of necessity, be far less than while the active circulation of the blood is going on. This is especially true of wounds of certain parts which prove unavoidably fatal by copious and sudden hemorrhages, such as those of the heart, aorta, or any of the great blood vessels. In fact, wounds involving the left side of the heart, or the arteries, would probably, if made after death, be attended with no hemorrhage whatever; whereas, in the division of any of the venous trunks, soon after death, the amount of blood lost would be far smaller than would have been poured out during life, and would depend, in a great measure, upon the position of the part injured. In a celebrated case of assassination, tried in Berlin, the head of the murdered person had been severed from the body, but, at the same time, other injuries of a fatal nature had been inflicted. Dr. Casper gave his opinion that the neck had been severed before life was extinct, for the reason that a very large amount of blood was found to have been effused from the cervical vessels. The chief distinction, therefore, between hemorrhage before and after death, is that, in the latter case, the amount lost is comparatively trifling, and exclusive of a venous character.

249a. Coagulation.— While the signs we have referred to are the principal means of discrimination in wounds involving a loss of

[69] A. Stillé, Gen. Pathology, p. 426.

blood, there is another large class of wounds to which they do not have so extensive an application. Thus, although in contused wounds the coagulation of the blood under the surface injured sometimes affords, especially in injuries of the head, an indication of the blow having been given during life, yet, on the other hand, the want of coagulation is no proof that it was not inflicted till after death. The blood may, from various causes, remain fluid after death. Its coagulability may be impaired by disease, or by the mode of death. If, for instance, the person murdered has been affected with scurvy, or his death caused partly by any mode of asphyxia, the fluidity of the blood under contused wounds, or indeed in any kind of wound, in such an individual, would not be inconsistent with the opinion that the wound was given while the person was alive.

250. Ecchymoses.— Ecchymoses that are found in subcutaneous wounds inflicted after death may closely resemble those following wounds of a similar character inflicted during life. From experiments made by Dr. Christison, it appears that blows inflicted two hours after death will produce a discoloration of the skin, similar to what might be expected during life, except in regard to extent, which does not correspond with the severity of the blow. The experiments of Dr. Christison establish a strong presumption that, when contused wounds have been inflicted immediately after death, the external similarity will be still greater, and the correspondence between the amount of violence and the discoloration more exact. While this author was performing his experiments to ascertain whether blows given after death would produce similar appearances to those inflicted during life, he selected, as a subject for a series of these experiments, the body of a female who had died in the infirmary. The body, being afterwards carried to the dead house, and there seen by some persons who were not aware of the experiments having been performed, was not allowed to be buried until an inquiry had been made into the circumstances, so persuaded were these persons that the woman must have died in consequence of barbarous treatment received during life.

In this connection, the following remarks of Casper[70] are not without importance: "Where death has been caused by violence, it is extremely common, especially where the bones lie immediately under the skin, to find suspicious spots upon the body. They are from one to three-quarters of an inch in diameter, usually rounded, red or reddish-brown, or dirty or yellowish-brown, more or less hard

[70] Op. cit., Vol. I., p. 127.

to the touch, and tough under the knife, but exhibiting no real suggillation. These spots may perplex the examining physician, and, indeed, when the mode of death is unknown or attended with suspicious circumstances, demand the closest examination and description, because they may possibly indicate and throw light upon a struggle in which life was lost. In the majority of cases, however, these pseudo-suggillations are produced at the moment of death by the body grazing or falling against some hard substance, and consequently have no relation to the cause of death. They may even be produced after death by the rough handling or carrying of the body, and may be imitated, after the lapse even of several days, by friction with a coarse brush or cloth, and so as not to be distinguishable from similar injuries produced during life." "When," says Engel, "these excoriations are found upon parts of the body in which the blood cannot settle after death, the portion of dried integument acquires a yellowish-brown color, and is translucent at the edges; on the other hand, if they form in situations where the blood tends to accumulate, their color is a very dark brown, and they cannot be distinguished from excoriations produced during life." Casper insists upon the practical importance of these distinctions, declaring that the cases are numberless in which ignorance of them or inattention to them has led to the most erroneous conclusions and mischievous consequences.

The inference from the considerations here presented is not that there is no distinction possible between ecchymoses produced before and after death, but that great caution is necessary in giving an opinion upon this point. The external bruise must be carefully compared with the effusion into and under the skin and adjacent tissues. If the latter be at all extensive, and especially if the blood be coagulated, we think there need be little hesitation in declaring that the injury must have been inflicted during life. Moreover, there are few cases of vital ecchymosis, without attendant swelling of the skin and other signs of vital reaction. If, while the body is fresh, the ecchymosed spot be found at all swelled, there can be no suspicion of post-mortem violence. Also, if the ecchymosis, though trifling in extent, be accompanied with excoriations or abrasions of the skin, as is often found in cases of strangulation with the hand, the fact of the violence having been done upon a living person will be manifest. The difficulty of discriminating between contusions made before and after death will be much enhanced by the putrefactive process, the effect of which is to so alter the consistence and

color of the skin and subjacent parts as to destroy all characteristic signs.

Dévergie[71] has remarked that ecchymoses are often concealed on the bodies of the drowned, when first they are removed from water, owing to the sodden state of the skin; they may become apparent only after the body has been exposed for some days, and the water has evaporated.

251. Cadaveric spots.— The spots and blotches (suggillations) produced by cadaveric changes are more likely to give rise to mistakes. In persons unaccustomed to inspect the bodies of the dead, the stasis or congestion of the blood in the capillary vessels of the skin, which sooner or later invariably occurs, may lead to the suspicion of violence having been inflicted before death. This lividity is most apparent and extensive in those who have died suddenly in full health, by some asphyxiating cause. It occurs in almost any part of the body, but is usually deeper and more distinct in those which are the most dependent. The time at which it is developed varies from the moment of dissolution up to the occurrence of rigidity; and is, of course, hastened or retarded by various causes, such as the mode of death, the season of the year, and the age of the subject. The blood is merely superficially diffused in the outer surface of the skin, and this mark alone ought to suffice to distinguish these discolorations from those produced by violence, since in the latter the blood is effused in the whole substance of the cutis and generally, also, in the subcutaneous cellular tissue, muscles, etc.

The forms assumed by the marks of cadaveric lividity are various; sometimes the skin is mottled, at others large blotches spread over the surface, and at others, again, the lividity is more uniformly diffused, without necessarily appearing on a dependent part. The marks of the clothing which the deceased wore, if they have remained upon him until rigidity has taken place, give a very singular appearance to the skin. Those portions which have compressed the body tightly will be recognized by the paleness of the surface, while the intervening spaces may be deeply tinged. The folds of a sheet often thus communicate to the body an appearance of flagellation, the back being covered with stripes. These are called vibices, and are familiar to every one accustomed to the inspection of persons recently dead. This stage of cadaveric lividity, which is due to the congestion of the capillary vessels, runs gradually into another at the approach of

[71] Taylor's Medical Jurisprudence, sixth American edition.

putrefaction. This stage is characterized by the uniform purple or dark red discoloration of all the depending portions of the body, and arises from a transudation of the serum and coloring matter of the decomposed blood. Hence, when an incision is made into parts thus affected, as, for instance, over the occiput, the skin and subjacent tissues will be found thickened and infiltrated with bloody serum. But neither of these stages of cadaveric lividity ought to mislead the physician; the diffusion, the superficial character of the infiltration, or, as in the latter case, the peculiar kind of effusion, the want of any external injury to correspond with the internal marks of apparently great violence, and many other considerations, which it is hardly necessary to specify, ought to render the distinction an easy one. We are disposed to think that the possibility of serious error arising from the distant resemblance between cadaveric lividity or the discoloration of the skin caused by certain diseases of the blood has been in general overestimated by writers upon legal medicine.

252. Post-mortem blisters.—Blisters produced by heat, says Böcker, although when laid open they may disclose a red skin, do not present characteristics which enable us to determine whether they were raised before or after death; for instance, heat produces the same immediate effect in each. Scalding liquids, however, do not blister the dead body, they only cause the epidermis to peal off in shreds. The skull, when subjected to the action of flame, cracks and exfoliates. Brouardel[72] considers, however, that the contents of the blister differs in two cases. If the burn be inflicted upon the living, the fluid is what he describes as albuminous. If the body be dead before the burning, he describes the fluid as serous.

V. Wounds of various parts of the body.

253. Head, in general.— Injuries to the head from their frequency and gravity as well as from the various medico-legal questions to which they give rise, are deserving of particular attention.

254. Face.—Wounds of the face cannot, in general, be considered as dangerous to life though they are often followed by serious deformity and tedious healing. In addition to the unsightly scars, wounds to the cheeks, just in front of the ear, are liable to injure the nerve that goes to the muscles of the face, and cause paralysis of that side of the face.

255. Eye.— Wounds to the eye[73] may not merely interfere with

[72] Brouardel, L'Infanticide, 1897, p. 124.

[73] For many instances of serious wounds to the eye, see Gould and Pyle's

or destroy the vision of that eye, but, if the injury involve the zone about five millimeters outside of the edge of the iris, there is liable to follow a sympathetic ophthalmia, with the loss of sight in the other eye. Moreover, total blindness may follow a traumatism to the head which leaves no evidence on the surface of the cause of the blindness. Such instances may be due to destruction of the optic nerve at its entrance into the orbit by a splinter of bone chipped off at that point, or by compression of the nerve by a deep blood clot. Injuries penetrating the socket of the eye also find easy entrance into the cranial cavity and are thus likely to produce injury to the brain, and, possibly, death. Injury to the nose is not, as a rule, significant beyond the deformity, except in those cases of penetration, where the instrument, going through the nose, may also enter the brain.

256. Ear.— Injury to the ear[74] finds its significance in large part in the subsequent deafness. In many cases the traumatism to the ear may merely call attention to a previous deafness that had gone unnoticed. Such a previous trouble should be ruled out before the traumatism is accepted as the cause of the newly discovered deafness. The diagnosis of previous disease is not always clear. If there is a large, irregular perforation of the drum membrane, with a persistent discharge of pus, extensive involvement of bone, adhesions of the small bones of the ear, and exuberant granulation tissue (proud flesh), there can be no question but that the disease has been in progress for at least several weeks. On the other hand, if the rent in the drum membrane is fresh, and there is a discoloration of the tissues, due to ecchymosis, the perforation is probably of traumatic origin. Traumatic ruptures of the drum membrane are usually found in the upper part of the membrane, and have the appearance of an irregular slit; very rarely are they the shape of a circular perforation. Rupture may be due either to direct violence applied to the drum membrane by an instrument introduced into the auditory canal, or, as more commonly is the case, through indirect violence, by compression of the air in the canal from a blow upon the external ear. Such a blow is usually followed by more or less hemorrhage, and possibly by deafness; but even if the drum membrane be ruptured, deafness by no means always follows for a ruptured membrane is perfectly compatible with good hearing in that ear, in spite of the prevalent opinion among the laity to the contrary.

Anomalies and Curiosities of Medicine, p. 527.

[74] See Bernhardt's article. Viertljhrschr. f. Ger. Med. 3 F., Bd. XXV., Supplement Heft, 1903. Also Gould and Pyle's Anomalies and Curiosities of Medicine, p. 537.

257. Scalp.— Wounds of the scalp are peculiar in that they do not gape open as wounds in most of the other parts of the body do. They also usually involve the deep structures down almost to the bone. The process of repair goes on to a distinctly better advantage than in most other regions of the body, and a large number of the wounds which elsewhere would suppurate, here heal by primary intention, so that scalp wounds may, in general, be considered less dangerous than those of equal extent in other portions of the body. Many instances of removal of the entire scalp by machinery accidents are on record.[75]

258. Skull fractures, in general.— Fractures of the skull are peculiar in that they involve flat bones, consisting of two lamellæ of compact bony tissue, and an intermediate spongy layer.

259. Vault of skull.— The fracture of the vault of the skull may involve either one of these layers alone or both layers, depending on the character of the violence exerted. The fracture, likewise, may be a simple fissure of the bones, or a distinct depression of an area of the bone. If there is no open wound to examine it is extremely difficult to diagnose a fracture of the skull unless there is a distinct depression of the bone. Von Bergmann says[76] that many, perhaps the majority, of such fractures remain undiscovered. Fortunately the danger from a fracture of the skull is not dependent directly upon the bone lesion, but rather upon the injury to the brain; and it is the depressed fractures that cause the most injury to the brain. However, there is always associated with the fracture some violence done to the brain, independent of the fracture.[77]

260. Base of skull.— Fractures of the base of the skull are much more serious, because, as a rule, the violence causing such a fracture is much more severe, since the bones in this region are distinctly denser than those of the vault. Moreover, the portions of the brain in contact with this portion of the skull are more intimately connected with the functions of life, and injury to them almost invariably causes immediate death. Another great source of danger in fractures of the skull is the infection of the cranial contents with the production of meningitis, or brain abscess.

The diagnosis of fractures of the base of the skull is more difficult than that of those of the vault, and these fractures are all too often not diagnosed. When a man is picked up unconscious on the street, among the possibilities to account for his condition are the

[75] For instances of scalp avulsion see Schaeffer, Transactions of the Ninth International Medical Congress, Washington, 1887, Vol. III., pp. 166 *et seq.*

[76] Von Bergmann and Bull's System of Practical Surgery, Vol. I., p. 82.

[77] See §§ 263 *et seq.*, *infra*.

fairly frequent intoxications, and the injuries to the brain and skull, of which these fractures of the base are one of the most evasive in diagnosis. If there is any sign of bleeding from the nose, mouth, or ears, or any bleeding into the conjunctivæ, or if there is any sign of paralysis of any of the cranial nerves, the probability of fracture is great. The escape of brain substance or of serous fluid from any of the cavities in proximity to the brain—the ear, nose, mouth—makes the probabilities still greater in favor of fracture of the skull.

In milder cases, possibly in the course of a few days, symptoms may develop or disappear so as to clear up the diagnosis.

261. **Mechanism of fractures.**—The mechanism by which fractures of the skull are produced is very important from a medico-legal point of view. A most excellent description of this mechanism is given by von Bergmann.[78] He describes them as bending or bursting fractures. The bending fractures occur at the site of impact of the violence, or in parallel circles around that point. The bursting fractures tend to extend from the point of impact to the diametrically opposite pole of the skull, and most frequently involve the base of the skull, because it is less elastic than the vault. The fractures due to the bending in of the skull at the point of impact are usually depressed. The others due to bending are in the circles around this point, and the bursting fractures are regularly fissures of the bone perpendicular to the circles of the bending fractures.

The fractures occurring at the opposite pole of the skull from the point of impact (which are commonly called fractures by "contre coup"), he considers as incomplete bursting fractures. A most famous fracture of this type was the fracture of the two orbital plates of the skull after the gunshot injury to the occiput, in the case of President Lincoln. Compression of the skull between two bodies, as when the skull is run over by a wagon or hit by a stick of wood while the head is lying on the ground, produces usually a fissure of the base, extending from ear to ear (a bursting fracture) in addition to the depression of the bone at the point of impact of the wagon wheel (a bending fracture). Similarly a fall upon the occiput is very likely to cause a fissure from the occiput through the base to the anterior portion of the skull, as well as the depressed bending fractures at the site of impact. If the skull is merely struck and not compressed between two bodies, the bursting fissures tend to extend from the point

[78] Von Bergmann and Bull's System of Practical Surgery, 1904, Vol. I., p. 70.

of impact to the equator. If the fissures are due to compression they are widest in the equator and least near the poles. Falls upon the top of the head or blows there produce peculiar ring fractures of the base,—bending fractures due to the sharper impact from the spinal column. With these may be associated bursting fractures, running radially to this ring. Hence he considers that, from the character of the fracture of the skull, a great deal can be determined about the manner in which the violence was inflicted.

262. Gunshot fractures.—Gunshot wounds of the skull are deserving of special attention on account of their frequency and their peculiarities. The following is quoted from von Bergmann:[79] "In gunshots fired at very short range the skull cap, together with the scalp covering it, is torn into many pieces which, with the mangled brain, are scattered to quite a distance. At a range of 50 meters (160 feet) the scalp is preserved and continues to hold the skull together, though the latter is broken into many fragments. The scalp shows two defects, with lacerated edges, from which the brain tissue exudes: the wound of entrance and the wound of exit. At a range of 100 meters (325 feet), the destruction of the skull is somewhat less, though two zones of comminution can be found, grouped around the wounds of entrance and exit. The lines of fracture are arranged in part radially, in part encircling the bullet hole like a series of bursting and bending fractures. The fissures may become united with one another, forming a network spread all over the entire skull. The diameter of the wound of exit in the skin does not exceed 20 to 30 millimeters. At increasing range the damage done by the projectile continues to grow less. At a range of 800 to 1,200 meters (2,600 to 4,000 feet) the fissures encircling the bullet holes disappear and only the radial fissures are present. These disappear at a range of 1,600 meters (5,200 feet) and upward, except that there is one fissure connecting the wound of entrance with the wound of exit. Even this is no longer present at a range of from 1,800 to 2,000 meters (5,600 to 6,500 feet): at this distance there are clean-cut bullet holes. It was not until a range of 2,700 meters (8,700 feet) had been reached that the skull was not perforated, and the bullet remained embedded in the brain.

"Ordinary pistol shots and revolver shots, even at short range, produce none, or, at most, only short, radial fissures, and one or two

[79] Von Bergmann and Bull's System of Practical Surgery, 1904, Vol. I., p. 113.

concentric fissures about the hole, resulting from the cylindrical bullet. They rarely traverse the entire skull so as to leave a wound of entrance and of exit, usually remaining embedded in the brain. Where there are two openings their appearance is characteristic, and it is always easy to tell at once which is the wound of entrance and of exit.

"The wound in the outer table is made by the foreign body itself, while that of the inner table is caused not only by the bullet, but also by the fragments of bone broken from the layers of bone already traversed: the external table and the diploe. The internal opening is not only larger, but is usually irregular in outline, with a notched and broken edge, owing to the fact that it is produced not by a spherical projectile alone, but by splinters and fragments carried along with it. Should a bullet penetrate the entire skull from one side to the other, the outer table would be more extensively comminuted than the inner (in the wound of exit) for the reason just explained."

263. **Brain, in general.**— Injuries to the brain may be divided into three general classes: Concussion, compression, and destruction.

264. **Concussion of brain.**— In concussion of the brain without any macroscopic or microscopic lesion of the brain, there is, following a traumatism to the head, a transient depression of all the activities of the brain; there is a depression or loss of consciousness, going on to a state of stupor or coma, slowing of the pulse, and marked slowing of the respirations. This stage gives way to one of exaltation, with increased frequency of pulse and respiration and elevation of the body temperature. If the symptoms persist for more than a couple of days the probability of the presence of some other complication must be considered. This condition has recently been produced experimentally by repeated light blows instead of a single severe blow. And in this manner the same condition was produced without the possibility of any damage to the brain. To these pure concussion cases the term "commotion" is being applied in place of concussion.

265. **Compression of brain.**— Compression of the brain is due either to depression of a portion of the vault of the skull, or to an increase of the cranial contents, usually of the cerebro-spinal fluid, or, what is most frequent in traumatic cases, to the extravasation of blood in the cranial cavity from some ruptured blood vessel. In any case, if it occurs in a previously healthy person, it is associated with such traumatism that there appear also symptoms of concussion. The symptoms of compression alone are similar to those of concus-

sion, in the depression of the functions of the brain; but in the compression cases there is no means of relieving the increased pressure, so that the symptoms persist for an indefinite time. In the cases of local compression due to depressed bone, there may be focal symptoms pointing to disturbances of the special region of the brain; but these symptoms would appear after the clearing up of the symptoms of concussion. The regular course of such injuries is, first, the development of the symptoms of concussion, with its unconsciousness; then these symptoms clear up and the person regains consciousness, at least, temporarily, for a period of a few hours or days, and then, as the compression of the brain increases, with the gradual extravasation of blood into the cranial cavity, the symptoms of compression come on, giving loss of consciousness again; but this time the unconsciousness is of longer duration, and may not clear up at all. This second period of unconsciousness is associated with the focalizing symptoms dependent upon the region of the brain injured.

Hofmann cites a case[80] of death from compression of the brain without any symptoms of concussion, which may be taken as typical of the compression cases. A man thirty years old was struck on the left temple with a stone at six o'clock in the afternoon. He did not lose consciousness, but walked home, ate dinner with the family, and then went to the theatre and stayed until eleven o'clock that night, when he came back home. At two o'clock in the morning he first complained of headache, and at four o'clock that morning he died. The autopsy showed a depressed fracture of the left temporal bone, injury to a branch of the middle meningeal artery, a large exudate between the bone and the dura mater, and a contusion of the cortex of the brain.

The long latent period before the development of symptoms after injury to the head is well illustrated by a case given by Taylor,[81] of a man injured on April 11th, 1853. He suffered from his head, but worked hard up to June 12; then he became insane. He improved, but the symptoms relapsed, and on August 17th he died, four months after the injury. The autopsy showed a shot in the frontal bone, a clot in the membranes covering the brain, the whole left hemisphere covered by a false membrane, and another clot in the pons varolii. The assailant was convicted of manslaughter.

266. Destruction of portion of brain.— Destruction of a portion of

[80] Hofmann, Ger. Med. (1903) p. 456; Quoted from Jaunes, Montpelier Méd., 1885, p. 523.

[81] Taylor, Med. Juris. p. 626.

the brain by traumatism will produce symptoms depending on the portion of the brain involved. Destruction, however, of large areas of the brain are perfectly compatible with life. Perhaps the most astonishing cases of this kind have been in connection with abscesses of the brain, where the loss has been gradual. Morand reports a case where one half of the cerebrum was destroyed by suppuration following a gunshot wound of the head. The man lived for nine and a half months after he was wounded. Here, in injury to the brain, more often than in the case of fractures of the skull, the lesion may be at a point on the opposite side from that at which the violence was directed. The consequences of destruction of the brain are dependent upon the part of the brain destroyed. In the frontal and occipital regions of the cerebrum the symptoms may be entirely wanting, while at the base of the brain even small lesions are often fatal, as is evidenced by the high mortality of fractures of the base of the skull. As an instance of great destruction of the brain without serious results is the famous case described by Dr. Bigelow, professor of surgery at Harvard University.[82]

Phineas P. Gage was occupied in charging with powder a hole drilled in the rock, for the purpose of blasting. His assistant having neglected to cover the powder, as is usual, with sand, Mr. Gage, who was not aware of the omission, dropped the head of the iron upon the charge, to consolidate or "tamp it in." The iron struck fire upon the rock, and the charge exploded. The bar of iron was projected directly upwards in the line of its axis, passing directly through his head and high into the air. It was picked up at some distance, smeared with brains and blood. "From this extraordinary lesion, the patient has quite recovered in his faculties of body and mind, with the loss only of the sight of the injured eye." The weight of the iron bar was 13¼ pounds, its length 3 feet, 7 inches, and its diameter 1¼ inches. The end which entered first was pointed, the taper being 7 inches long, and the diameter of the point ¼ of an inch. The track taken by the bar was the following, as ascertained by an experiment upon an ordinary skull (the entering hole was under the zygomatic arch, encroaching equally upon its walls): "In the orbit, the sphenoid bone, part of the superior maxillary below, and a large part of the frontal above, are cut away, and with these fragments, much of the spheno-maxillary fissure; leaving, however, the optic foramen intact about a quarter of an inch to the inside of the track of the bar." The base of the skull upon the inside of the

[82] Am. Journ. Med. Sci., July, 1850.

cranium presents a cylindrical hole of an inch and a quarter in diameter, and the calvarium is traversed by a hole, two thirds of which is upon the left, and one third upon the right of the median line, its posterior border being quite near the coronal suture. "It is obvious that a considerable portion of the brain must have been carried away; that, while a portion of its lateral substance may have remained intact, the whole central part of the left anterior lobe of the front of the sphenoidal or middle lobe must have been lacerated and destroyed. This loss of substance would also lay open the anterior extremity of the left lateral ventricle, and the iron, in emerging from above, must have largely impinged upon the right cerebral lobe, lacerating the falx and the longitudinal sinus."

Immediately after the injury the patient was slightly convulsed, but spoke in a few minutes. He was carried to an ox-cart which stood at a short distance, and rode in it, sitting erect, full three-quarters of a mile. He got out of the cart himself, and, with a little assistance, walked up a long flight of stairs, into the hall, where he was dressed. He retained his senses and memory perfectly, and gave an intelligent and connected account of the accident.

Many other instances of surprising recoveries after wounds of the brain might be related,[83] but the preceding case gives, we think, ample proof that, even in very extensive injuries to the cerebrum, with fracture, hemorrhage, and loss of brain substance, death is not the necessary termination. Moreover, as we saw in the cases of brain compression, the symptoms of compression may be insignificant immediately after the injury, even in fatal cases. Thus, a man fired a gun, which burst and inflicted a large wound with fracture of the skull in the middle of the forehead. Consciousness and senses were unimpaired, and no pain was felt. After the discharge of several fragments of bone and a small piece of iron, the wound healed. A month or six weeks later the man was sent to jail and put to hard labor, at which he continued for three weeks, when he complained of headache, and died rather suddenly at the end of a week. There was an abscess of the right anterior lobe of the brain, and between the dura mater and the right orbital plate of the frontal bone was a piece of iron which weighed an ounce and a half.[84] In another case a man had a knife-blade penetrating the brain to the depth of two inches without pain or characteristic symptoms for twenty-four

[83] For other instances of wounds of the brain followed by recovery, see Gould and Pyle's Anomalies and Curiosities of Medicine, p. 545.

[84] Charleston Med. Journ., Vol. XV., p. 256.

hours after he received the wound. He then became comatose, and so died.[85]

267. Derangements of mind resulting from injuries.—A certain number of injuries to the head that are not mortal give derangements of the mind,—aphasia, paralysis,[86] anesthesia, epilepsy,[87] epileptoid conditions, or diabetes,[88]—which may not develop until some time after the injury.

268. Spine, in general.— Injuries to the spine are more rare than those of other portions of the body, but are very serious when they do occur. They result most frequently from falls or crushing accidents. The dangers of these injuries lie in the importance of the spinal cord, which, like the brain, is intimately associated with the essential functions of the body. The injuries to the spinal cord may similarly be described as concussion, compression, and destruction.

269. Concussion of spinal cord.—Concussion of the spinal cord, similar to concussion of the brain without any lesion of the cord, is a disturbance of doubtful existence, and very difficult of diagnosis. It is to be distinguished from the spinal neuroses following injuries to the spine[89] in that concussion gives only temporary symptoms of pain and paralysis. In the International Text Book of Surgery an instance of concussion of the spine is given that was under the care of one of the writers, in Guy's Hospital, in 1894.[90] A woman, aged fifty-nine, fell down stairs on her back, and when picked up was found paralyzed in both legs. No special investigation of the case was possible for several hours. It was then noticed that there was complete loss of power from the neck downward, with paralysis of the bladder; the breathing was carried out by the diaphragm. At first reflexes could be obtained, but were soon lost. There was anesthesia below the level of the umbilicus. On the second day the temperature rose to 105, and on the tenth day she died of pneumonia. A minute post-mortem examination was made but nothing was found to explain the symptoms, both brain and cord being, to all appearances, perfectly healthy. But for the autopsy the case might have been explained as one of hemorrhage into the cord in the cervical region. In all probability if the patient had not died from some intercurrent trouble the symptoms of paralysis and anesthesia would have soon cleared up.

[85] Lancet, Sept., 1858, p. 307.

[86] See § 231, *supra*. There are also several cases of late traumatic apoplexies described by Stadelmann, Deutsch. med. Wochenschr., Nos. 6 and 7, 1903.

[87] See § 232, *supra*.

[88] See § 233, *supra*.

[89] See § 235, *supra*.

[90] Internat. Text-Book of Surg., Vol. I., p. 823.

270. Compression of spinal cord.— Compression of the spinal cord is due to pressure from either the bones of the vertebræ, which have been fractured or dislocated, or from blood clots. Blood clots independent of injury to the bones are very rare. The evidence of compression of the cord are dependent upon the level of the cord which is injured. There is destruction of the functions of the cord at the level of the injury, and paralysis and anesthesia below the level. For the symptoms of the various levels, reference should be had to some standard text-book on nervous diseases,[91] or some of the extensive works on surgery.

271. Dislocation of vertebræ.—Dislocation of the vertebræ is comparatively rare, occurring most often in the region of the neck. Holden[92] cites the case fom Petit of a child who was instantaneously killed by being lifted by the head; and also relates the instance of a woman who was carrying a child on her shoulder. Losing its balance the child clung to its mother's head and drew it suddenly and forcibly backwards. The woman fell dead. But dislocation is more liable to occur in children because the ligaments are weaker than in the adult.[93]

272. Fracture of vertebræ.— In cases where the vertebræ are fractured, the injury done to the spinal cord may be due to the constriction it undergoes from pressure, its irritation by a spicula of bone, or to the effusion of blood upon it. To whichever cause it may be attributed, the ultimate effect is, in the majority of cases, fatal. It is not unimportant to observe that sudden death may take place from the spontaneous luxation of the second cervical vertebra; the odontoid process, which maintains it in its place, being liable to caries and consequent sudden fracture. This circumstance, as well as the existence of caries of the spine in any other and more usual position, may, in some cases of death after ill usage, explain the facility with which death has come on. Hence it is of great moment that, in case of death from supposed injury to the spine, the absence of this disease should be carefully ascertained. Sir Astley Cooper mentions the case of a woman in the venereal wards of St. Thomas's Hospital, who, while sitting in bed, eating her dinner, was observed to fall suddenly forward. The patients, on hastening to her assistance, found that she was dead. At the autopsy it was ascertained that the odon-

[91] See Starr's Organic Nervous Diseases, 1903, p. 165.

[92] Holden, Human Osteology, 5th ed., 1858, p. 44, note 2.

[93] Several instances of dislocation of the cervical vertebræ, with recovery, are cited by Gould and Pyle, Anomalies and Curiosities of Medicine, p. 578.

toid process was broken off, and the head, in falling forward, had forced the root of the process back upon the spinal cord, which occasioned her instant death.[94]

Dr. Stephen Smith in a valuable paper on "Fractures of the Odontoid Process,"[95] quotes six cases of spontaneous fracture of this process. One of these is Sir Astley Cooper's case, referred to above.

This accident is not neccessarily immediately fatal. In one instance, in which the fracture was caused by the person turning in bed, death did not occur for sixteen months.[96] In another case[97] a man had fallen from a building and received a blow on his head. At first he experienced no inconvenience, and continued his work for six weeks; but finally, a swelling made its appearance on the back of his neck, which was painful. Three months after the injury he was taken to Bellevue Hospital, New York. By this time the deformity of the neck had increased, the head had become fixed, with the chin carried to the left side and upward. Complete paralysis of the left arm and leg existed, and weakness of the right arm. As the case progressed there were marked evidences of defective aëration of the blood in purpleness of the face and left arm, general duskiness of the skin, and severe attacks of dyspnea. The patient died 160 days after the receipt of the injury. At the autopsy "the odontoid process was found to be fractured and carried forward so as to lie in a nearly horizontal position in contact with the anterior ring of the atlas; the atlas was dislocated forwards and slightly to the left side; the articular facets resting anterior to the body of the axis; the spinal canal was diminished to three-eighths of an inch; there was no rupture of ligaments or other fracture."

Three well-authenticated cases of recovery after fracture of the odontoid process are given by Dr. Smith. One is a case reported by Dr. Bayard,[98] where a child of six years fell 5 feet, striking on the head and neck. She was unable to move her head without great pain, but there was no swelling or irregularity of the neck. Two months after she had convulsive movements of the arms and legs, followed by paralysis of the body below the neck. After remaining in this condition for three months, the patient gradually recovered the power of walking. About two and a half years after the accident, a post-pharyngeal abscess formed, from which a bone escaped, which was decided to be the odontoid process.

[94] Dislocations and Fractures of the Joints, p. 463.

[95] Am. Journ. Med. Sci., Oct. 1871, p. 378.

[96] Copeland, Dict. Pract. Med., art. Paralysis.

[97] Smith, op. cit., p. 352.

[98] Canada Med. Journ., Dec., 1866.

273. Destruction of spinal cord.— Destruction of the spinal cord is found not merely in these cases where the bones compress the cord, but also in the cases of hemorrhage into the cord itself,—syringomyelia,—as after certain cases of falls, blows on the back of the neck, and acute flexion of the neck. The lesion most commonly is found in the lower cervical region. It is associated with paralysis and wasting of the muscles and of the arms, and disturbances of sensation, especially the sensation of heat and pain in this same region.

274. Stab wounds.— Stab wounds of the cord may be inflicted without injury to the bony canal. Wagner-Stolper collected eighty-six of these cases, of which about half were in the region of the neck, and the rest in the upper part of the thorax. The destruction of the cord is usually unilateral, and the paralysis comes on immediately after injury. Of the cases collected about 20 per cent were fatal, and of the others only 20 per cent entirely recovered from the paralysis.

275. Direct traumatism.—Instances of direct traumatism by criminal violence, producing injuries to the spinal cord, are rare. One such is recorded by Dr. Simeons, of Mayence.[99] A robust young man, twenty-six years of age, quarreled with three others, who fell upon him, threw him on the ground, and after having kicked and dragged him for some time, finally left him helpless. He was soon found, and carried into a neighboring house. He survived two days, completely paralyzed, but retaining his consciousness. The fifth cervical vertebra was found to be completely separated from the sixth, all the ligaments being torn; the whole of the spinal canal was filled with partly coagulated blood, and the muscles in the vicinity of the injury much infiltrated. No other injury of importance was detected.

"A bone-setter, named Richard, famous in the neighborhood of Napoléon Vendée, but still more famous by having been fined five francs, which made him a martyr, and increased his practice five-fold, was consulted on June 4th, 1853, by a farmer of the commune of St. Denis, named Lachavasse, who complained, after a heavy fall, of violent pain in the neck. The bone-setter, meeting him, made him enter a neighboring cottage, and said that he would soon put his neck right. With both hands he seized the patient's head, and by a rapid motion from left to right he three times turned the head over the shoulder. At the third time a crack was heard, and the bone-set-

[99] Henke's Zeitschrift, Bd. LVI., H. 3, p. 131.

ter exultingly exclaimed, 'It is done; the neck is reduced.' But at this very instant the patient was seized with paralysis of the arms and legs; his speech became very difficult; he complained of violent pain, and died the next day, firmly convinced of the skill of the operator, and asserting to the last that his neck was properly set. Examination of the body showed an effusion of blood at the level of the second and third vertebræ, the ligaments between which were stretched and torn; there was another effusion between the cerebellum and the base of the skull, evidently arising from lesion of the cord and its membranes."[100]

276. **Subcutaneous wounds.**— Wounds of the neck, when penetrating and associated with injury to the blood vessels, nerves, œsophagus, trachea, and larynx, are generally serious. Even when there is no breaking of the skin, the injury may be disastrous, as is seen in the shock following blows upon the larynx, or side of the neck. The popular reputation of a "blow upon the jugular" is an evidence of the severity of many of these injuries. Internal injuries, without breaking the skin, may also be of a very serious nature.

A case is related by Dr. Simeons,[1] in which an old woman was struck on the neck with a pewter soup-ladle; she died a few hours afterwards, asphyxiated. Upon examination after death, blood was found extravasated under the muscles of the neck, and into the anterior mediastinum, from a rupture of the external jugular vein. The cricoid cartilage and some of the rings of the trachea were broken, by which injury the size of the respiratory tube was necessarily much diminished. The skin was not broken.

A case of fracture of the larynx is reported by Dr. Hunt,[2] where a man was struck in the neck with great violence by a piece of wood, 2 feet long and 4 inches wide, which flew from a circular saw he was superintending. The patient survived the injury about sixteen hours. There was severe dyspnea, and tracheotomy was performed, greatly to the relief of this symptom, six hours before death. It is not stated if there was any external injury, but there was extensive emphysema of the sides, front, and root of the neck.

At the post-mortem examination congestion of the posterior and lower lobes of the lungs was observed in a marked degree, and emphysema of the upper lobes. The anterior mediastinum was filled with air, and the connective tissue communicating with that of the neck was emphysematous. There was an oblique fracture of the thyroid

[100] Rév. Therap. du Midi.
[1] Henke's Zeitschrift, 1848, H. 1.
[2] Amer. Journ. Med. Sci., April, 1866, p. 378.

and cricoid cartilages, involving posteriorly on the right side the arytenoid, which protruded through the lacerated mucous membrane. Edema of the glottis was marked, and the aryteno-epiglottidean folds were swollen greatly with serum and blood.

277. **Open wounds of neck.**— Of the open wounds of the neck, those involving the large blood vessels lead to rapid death from loss of blood if the carotid arteries or the internal jugular veins be cut through; and the smaller vessels—the internal carotid, the external carotid arteries, or even their branches, and the external jugular veins—may lead to death from the same cause in a not much greater length of time. Wounds of the veins may also be fatal from aspiration of air into the vessels, causing instant death. Wounds of important nerves of the neck are almost impossible without injury to some of the other important structures of the neck.

278. **Larynx and trachea.**—Wounds of the larynx and trachea are not in themselves fatal, but are apt to lead to the entrance of blood or foreign matter into the respiratory passages, and so set up dangerous pulmonary inflammation, or such inflammatory swelling of the trachea as to cause obstruction to breathing.

279. **Œsophagus.**—Injury to the œsophagus is rare without injury to some of the other more significant overlying structures. Its dangers arise from the subsequent difficulties in swallowing, and the inflammation of the tissues of the neck arising from the escape of the food or other material which the person attempts to swallow.

Dr. Ryan related to the Medical Society of London a case of suicide, in which, after several ineffectual attempts to divide the thyroid cartilage, a man had succeeded in inflicting upon himself a wound 5 inches in length, between this cartilage and the os hyoides, dividing completely the pharynx to the vertebræ. The fourth vertebra was roughened by a cut, and there was another cut in the intervertebral cartilage. Some branches of the carotid arteries were divided, but neither these vessels, the jugular veins, nor the sternomastoid muscles were injured.[3]

As Dr. Ryan properly remarks: "A person wonders at the possibility of a wound of this sort without cutting the larger vessels; and had the occurrence taken place in a lonely dwelling, where no third party was present, it might become a serious question, particularly under unhappy domestic discussions, whether the wound was self-inflicted; as its extent, the two incisions on the thyroid cartilage, the

[3] Ryan, Lancet, Amer. Ed., 1852, p. 218.

two on the vertebra, and that on the intervertebral cartilage would argue a determination of purpose and strength of wrist which fall to the lot of few."

280. Thorax; concussion.—Wounds of the thorax may be as dangerous as the others that we have considered, because of concussion. Concussion of the chest most frequently follows a blow in the region of the sternum. It is uncertain just what the cause of the condition is. There are no evidences of injury to any of the organs, and yet there follows a temporary condition of weak, rapid pulse, with the symptoms of collapse, which may rarely deepen into death, but more often is rapidly recovered from. In the cases where death follows a traumatism to the chest there are usually, however, some definite lesions in some part of the body to account for the fatal outcome.

281. Nonpenetrating wounds of thorax.— Nonpenetrating wounds of the chest are not dangerous except in the cases of concussion, when they are followed by injury to the functions of the lungs or heart. The ribs may be broken, but that in itself is not of great consequence. The broken ribs are, however, liable to lacerate the tissues of the lung, and cause the escape of air or blood into the pleural cavity, and so interfere with the expansion of the lung. So, contusions of the chest wall, even though they do not penetrate the cavity, may cause a contusion of the lung, and set a pneumonic process, or even light up an old tubercular process that has lain dormant.

282. Penetrating wounds of thorax.— Penetrating wounds of the chest likewise are serious, due to interference with the action of the lungs by allowing the entrance of air from the outside, or of blood from the chest wall, so filling the pleural cavity, even though the lung itself may not be injured. Injury to the lung is dangerous principally from the hemorrhage from its tissue. The bleeding from wounds in the edge of the lungs is slight, while that from the region of the root of the lung may be rapidly fatal. Another point of great significance here, too, as in wounds all over the body, is the possibility of infection and the filling of the pleural cavity with pus. Gunshot wounds of the lungs belong in the same category as other penetrating or perforating wounds of the chest. The ball, after it has entered the chest, may be stopped by the bones of the chest wall, or even by the skin just where the ball would have made its exit. The ball may, in some instances, be stopped by the ribs as it strikes them from the inside, and drop back into the pleural cavity and come to rest on the diaphragm. One of the most extraordinary instances of recovery from a wound traversing the whole thorax is the following: A young

soldier fell from a cherry tree upon an upright stake, such as is used in vineyards. It entered the left side between the seventh and the eighth ribs, and the pointed extremity projected on the other side between the fourth and fifth ribs, at the posterior part of the axilla, and to the length of a foot and a half. The young man retained his consciousness and his intelligence, did not appear to suffer much, and after one end of the stick had been sawed off, was conveyed to the hospital. There the stake was extracted without difficulty, and it was found that it had carried a part of the shirt with it. In three weeks the patient was discharged, entirely convalescent.[4]

283. Heart; nonpenetrating wounds.— Injuries in the region of the heart may produce injury either to the pericardium, with its inflammation, or to the heart itself. Crushing injuries, especially of the chest, are liable to cause rupture of the heart at the base, and death from loss of blood and interference with the action of the heart. Rupture of the heart from disease may also occur, but this is usually evidenced in the condition of the heart. When a person engaged in a quarrel receives a blow over the heart, and dies suddenly, and a rupture of the heart is found, the question may arise whether the rupture was due to the traumatism or to the disease. The case is evidently one that admits of discussion, belonging to that category of cases in which death already pending is apparently hastened by external violence. Whether there was disease of the heart favoring its rupture—such as fatty degeneration, ulceration, aneurismal dilatation—must be ascertained, as well as the force of the blow. It must be remembered, however, that rupture may occur spontaneously in these morbid conditions, even when the person is in a tranquil state; but that a fit of anger greatly increases the probability of its occurrence. Hence, the blow upon the chest may have had nothing to do with the rupture, this having been due to a strong excitation of a weakened heart. The same may be said of rupture of the aorta that has been weakened by disease, especially by aneurism.

284. Heart; penetrating wounds.— Penetrating wounds of the heart are always very serious, but not always fatal. Wounds that enter the cavities of the heart are more serious than those that merely produce injury to the heart muscle. Wounds opening the cavities of the heart are usually immediately fatal, but many instances are recorded where patients lived for a considerable period

[4] Many other instances of transfixion in Gould and Pyle's Anomalies and Curiosities of Medicine, p. 610.

after the receipt of such an injury.[5] A number of most peculiar cases have been reported of penetrating wounds of the heart, when the bullet has not injured the pericardium. These sound paradoxical but are too well authenticated to be doubted. "Hicquet reports an autopsy of a man who was found dead with a bullet wound in the fourth intercostal space. There was a circular pentrating wound of the right ventricle, although the pericardium, which contained liquid and coagulated blood, had not been injured. The ball was found between the pericardium and the chest wall. Zenker, Zillner, von Hassinger, Borellus, Heydenreich, Ward, Holmes, Gamgee, and Justi, have reported similar cases, some of which involved the left ventricle. In one case the left ventricle had been wounded in two places without there being any wound of the pericardium."[6]

Recoveries after wounds of the heart are almost as remarkable as those after injury to the brain.[7] Conner reports a unique case of a gunshot wound of the heart. The bullet passed through the right and opened the left ventricle and passed out of the left auricle, and became encapsulated in the lower lobe of the right lung. This patient died only after thirty-eight months. There had been profuse bleeding, pneumonia, pericarditis, and endocarditis. Brugnoli reports a similar case. A shoemaker was stabbed in the heart and died after nineteen years and seven months. There was a scar in the right ventricle about 3 centimeters long, and one in the ventricular septum and mitral valve. In a case reported by Dent, death took place one and a half weeks after a penetrating gunshot wound of the heart.

A most singular instance is reported in the "Notes of Observation at the Field Hospital of Rangoon." Here a soldier survived his wound two and a half months; emaciating, however, rapidly, although he was able to walk about. On dissection the course of the ball was traced through the pleura and lung by a cartilaginous canal of condensed tissue, to the root of the lung, where all trace of it was lost. On opening the pericardium, however, a hard body was felt in the apex of the heart which, when the cavity was laid open, proved to be a musket ball lying at the apex of the left ventricle, partly covered by a thin coating of white lymph. There was no injury to the heart or evidence of diseased action. The heart was preserved in

[5] A number of nonfatal wounds of the heart are cited by Gould and Pyle, Anomalies and Curiosities of Medicine, p. 620.

[6] Quoted in von Bergmann and Bull's System of Practical Surgery, Vol. II., p. 404.

[7] The following two cases are cited in von Bergmann and Bull's System of Practical Surgery, Vol. II., p. 408.

alcohol and sent to Calcutta. The only manner in which the ball could have found its way to the situation in which it was found must have been through one of the pulmonary veins, as there was no trace of its passage through the substance of the heart. A case which would seem to confirm this idea is mentioned in Smith's Jahrbuch, vol. LXXII., p. 328. A man was struck in the back by a bullet, which entered his thorax, and caused his death in twenty minutes. On dissection it was found that the ball had entered over the sixth rib behind, grazed the lung, and wounded the pulmonary artery. But it could not at first be discovered. It was soon found, however, in the right ventricle of the heart, where it had fallen by its own weight after penetrating the pulmonary artery.

285. Abdomen; nonpenetrating wounds.— Wounds of the abdomen, when nonpenetrating, may be fully as serious as penetrating wounds. Blows on the abdomen are celebrated for the great shock with which they are associated in the "solar plexus blows," which may be followed promptly by death. In addition to this factor of shock, the lax abdominal walls allow of great damage to the internal viscera without any serious signs on the surface. The large blood vessels or the liver or spleen, may be lacerated, and the person die from hemorrhage, or the intestines, kidneys, or gall bladder may be ruptured, allowing the escape of their contents, and infection of the peritoneum, with almost certain death unless properly treated. Of the more remote dangers, perhaps the most important is weakening of the abdominal wall, or the diaphragm, with the possibility of subsequent hernia. These nonpenetrating wounds of great danger are found after falls, crushes, accidents where the victim is run over, and so on. Occasionally in children after run-over accidents the intestine will be found detached from its mesentery, and gangrenous. Rupture of the abdominal organs is much more likely to follow injuries inflicted when the organs are distended, as with food, gas, or fluid of some sort. One case is mentioned by Hofmann of rupture of the stomach, following a stomach washing. There was a split along the lesser curvature of the organ.

There has been a generally accepted opinion that movable kidney may be caused by abdominal traumatisms not penetrating the wall of the cavity. There certainly have been a number of cases of more or less movable kidney, which have been discovered after such injuries. Attention has been called to this condition in some cases on account of the symptoms; while in other cases, probably, it has been because of the more thorough examination to which the person has been sub-

jected after such an accident. Harris,[8] in a recent article based on the study of the anatomy of these parts, comes to the conclusion that none of the cases are due primarily to injuries of this character.

286. Abdomen; penetrating wounds.—Penetrating wounds of the abdomen are very serious, principally from the fact that they expose the peritoneum to infection. Injury to the individual organs is of far less significance than the possibility of peritonitis after such wounds. As in the nonpenetrating wounds, injury to the various hollow organs, with the escape of their contents, adds another factor to the possible infection. On the other hand, some most remarkable instances are recorded of penetrating wounds of the abdomen, with recovery. The following case is reported by Mr. Gallway, surgeon in the Royal Artillery:[9]

"A gunner and driver of the royal artillery had made a murderous attack upon his sergeant with a bayonet, whereby he inflicted two wounds, happily superficial only, upon one leg and arm. Foiled in his efforts of greater success by the seasonable arrival of some other soldiers, the culprit rushed through the barrack-square to escape his pursuers, when the sentry on duty at the gate interposed himself with his carbine, in the attitude of 'charge bayonets' to obstruct him. The consequences of this movement to the other were that as he was rushing through a narrow passage with an impetus which he could not at the time control, he threw himself (not premeditately, it will be understood) with great force upon the bayonet of the sentry, which entered his body an inch to the left of the ensiform cartilage, and, passing through the abdomen, emerged by its point on the left of and close to the spinal column, some inches lower down. When I reached the scene of action, within two minutes after, I found the subject of this wound sitting upon a form in the guard-room, as insensible to any effects from the injury as he was unconcerned at his crime. I could not, therefore, at first believe the statement of his comrades, who told me what had happened, although the bayonet was handed to me bent by the violence to which it had been exposed; but on stripping the wounded man, I discovered the two openings of entrance and exit of the bayonet, corresponding, in form and diameter, to those which the different parts of the weapon would have occasioned. Added to this, the bayonet was withdrawn from his body by a noncommissioned officer, upon whose testimony I could rely; and what is more, this withdrawal was witnessed by a crowd of other sol-

[8] Harris, Journ. Amer. Med. Ass., Feb. 13, 1904. p. 411.

[9] Med. Times and Gaz., May 6, 1854.

diers around. Now this desperate character marched, in a quarter of an hour afterwards, to the hospital, three-quarters of a mile distant; and at the end of a fortnight was discharged from the same, to be placed upon trial for his life. The day after his admission his urine was a little bloody; and subsequently there was a general anesthesia of the walls of the thorax and abdomen, which lasted but for a while. With these exceptions, the injury was not followed by a symptom, nor did the subject of it require a dose of medicine for his recovery. To the circumstances of this affray having been enacted before dinner, I am disposed to attribute much of the immunity from evil which this ruffian enjoyed. Had the stomach been full it is not easy to conceive how a bayonet could have traveled through such a track of vital organs without endangering one or more. The reader may be interested to know that the life of this soldier was spared, transportation for the rest of his days being the sentence of the court martial."[10]

287. Pelvis.— Injuries to the pelvis bones, when they are of a serious nature, are usually associated with great violence, which is necessary to fracture the solid bony parts. Of the internal organs the most significant is the bladder, which is liable to rupture after kicks, blows, crushing accidents, etc. It is always a serious injury. When the rupture is such that it allows the escape of the contents of the bladder into the peritoneal cavity, and the wound is not promptly treated by surgical means, the result is almost invariably fatal. If the urine escape into the other tissues around the bladder the outcome may be more fortunate. The cause of the rupture of the bladder may be disputed, as, in some instances, the bladder has ruptured without injury. These nontraumatic ruptures, however, are almost invariably due to previous disease of the bladder or obstruction to the outflow of the urine, as in the cases of stricture of the urethra. One instance is recorded of over-distention of the bladder at an operation. In cases where a nontraumatic origin for the rupture of the bladder is argued and no diseased condition is found, the plea cannot be allowed. In the words of Dr. Taylor: "If a man were in good health prior to being struck,—if he suddenly felt intense pain, could not pass his urine afterwards, and died from an attack of peritonitis in five or six days,—if, after death, the bladder was found lacerated, but this organ and the urethra were otherwise in a healthy condition,

[10] Several other instances of transfixion of the abdomen, with recovery, are recorded in Gould and Pyle's Anomalies and Curiosities of Medicine, p. 648.

—there can be no doubt that the blow was the sole cause of rupture and death. In such a case, to attribute the rupture to spontaneous causes would be equal to denying all kinds of causation."

288. Genitals; female.— Injuries to the female organs of generation have been considered in connection with the signs of artificial abortion by local mechanical means. The occasional immunity from the serious effects of similar wounds is illustrated by the following cases: Dr. Sargent, of Worcester, Mass., reported to the Boston Society for Medical Improvement[11] a case which occurred in his practice. A woman, about thirty-seven years of age, in sliding down from a hayloft, impaled herself upon the handle of a pitchfork, which passed in at her vagina to the length of 22 inches, when her feet struck the ground. The handle was immediately withdrawn. Dr. S. saw the handle of the fork, which was rounded a little larger at the end than elsewhere, perfectly smooth, two inches in diameter, and showed distinctly the stain of blood up to an abrupt line, 22 inches from the end. It was supposed that the instrument perforated the upper end of the vagina on the left side, passed between the uterus and rectum, in front of the kidney, behind the spleen, and between the diaphragm and false ribs, peeling up the costal pleura till it reached the scaleni muscles. The subsequent history of the case, which showed a fracture of the first rib, proved this diagnosis correct. The woman entirely recovered in a few weeks. Another case is reported by Dr. Bryant, of Mississippi,[12] of a negro woman who leaped from the height of ten feet and alighted upon a tobacco stick, which had been driven firmly in the ground, and was concealed by some loose fodder. The stick was 4½ feet long and 1 inch square. It entered the vagina, penetrated its upper part, and traversed the abdomen at the eleventh or twelfth rib. The stick was smeared with bloody mucus to the extent of 12½ inches, and its termination was abrupt and distinct. "It was quite clear that the stick was not stained by the fluid running down upon it." This woman also recovered, after losing a considerable quantity of blood.

Wounds of the genitals in the female are generally due to the violence of others.

A number of criminal trials have taken place in Scotland in conse-

[11] Am. Journ. Med. Sci., Oct. 1853, p. 355.

[12] Am. Journ. Med. Sci., Oct. 1853, p. 399. The sequel of Dr. Sargent's case is given in the Boston Med. and Surg. Journ., Dec. 1856, p. 387, and several analogous ones are there referred to by Dr. Coale. Dr. Maynard has reported a fatal case in a woman who, in sliding down a hay-mow, fell upon a hay-hook. (*Ibid.*, Aug. 1857, p. 29.)

quence of women, for the most part pregnant, having died of hemorrhage from the pudendum. In most or all of these cases, it has been averred that the wound was inflicted with criminal intent by the husband or others. A case occurred at Dundee, in which there were no grounds for suspicion that the woman had received a wound. She lived on good terms with her husband and neighbors. She had been straining at the night-stool when the hemorrhage came on. A large quantity of blood was found about her person; it had flowed from the genital organs, but not from the uterus, which was fully expanded in pregnancy. On examining the vagina, Dr. Kyle found a recent aperture in one labium, which he traced into a large vein; one of a plexus which extends some distance into the vagina. A case is related by Dr. Thomson, in which the woman, however, recovered after losing a large quantity of blood. In this instance, the woman's husband, a cattle drover, had been long absent from home, and, on his return, remained alone with his wife about half an hour. The bleeding commenced immediately after this visit. A wound was discovered large enough to admit the finger to the depth of about half an inch, in the anterior wall of the vagina, at the union of its upper with its middle third. It was probably an accidental laceration, but if death had actually resulted, the existence of the wound might have given rise to suspicions of criminal violence.[13] Dr. Menzies relates that a woman three weeks after delivery, on rising from bed, accidentally fell on the top rail of a common stuff-bottomed chair. Profuse hemorrhage ensued, which, on examination, was found to proceed from a wound in the vagina nearly half an inch in length, and which looked exactly as if it had been inflicted with a sharp instrument.[14] In another case reported by Dr. Ellis, and also of a pregnant woman, death by hemorrhage resulted from a lacerated wound of the vagina, supposed to have been inflicted by her falling on the post of a crib. In a third case, related by Dr. Morland, a woman five months advanced in pregnancy, fell upon the roof of a wood-shed, by slipping upon one of the steps by which the roof was ascended. The hemorrhage was very profuse and, but for timely assistance, would probably have been fatal. The wound was an inch and a half long by an inch deep, upon the internal surface of the left nympha. In these cases there was nothing in the character of the wound to distinguish it from those in which the absence of contusion

[13] Ger. Leichenöff, 2 Hundert. Fall., p. 249, from Glasgow Med. Journ., 43. April, 1862, and Gazette des Hôpitaux.

[14] Am. Journ. Med. Sci., Vol. XLIV.,

has been supposed to indicate a homicidal origin. They also appear to show the peculiar danger to which wounds of the genitals expose pregnant women.

289. Genitals; male.— Wounds of the genitals in the male are usually self-inflicted, and instances of this kind most usually occur in the insane. The danger to life is principally from the hemorrhage, and may be very profuse and not easily controlled. Impotence may be the result of even imperfect mutilation.

M. Toulmouche[15] has contributed some interesting cases of wounds of the genitals. One of them, a case of castration of the right testicle, is especially interesting, inasmuch as M. Toulmouche was enabled to state, from the appearance of the wound and in spite of the obstinate silence of the patient, that the castration must necessarily have been performed by a second person. The recipient of the injury must have been forcibly held. The tunica vaginalis was neatly opened from above downwards, the testicle drawn out, and the cord divided above in an artistic manner.

Although "fracture" of the penis is a rare accident, a sufficient number of cases have been reported to make it worthy of notice. In the Cincinnati Journal of Medicine for July, 1866, Dr. J. P. Bing relates a case which was tried in the court of common pleas, in Meigs county, Ohio, February, 1866. The indictment was substantially as follows:—

"That one Mary Broderick, of the county aforesaid, did, on the 29th day of July, 1865, purposely and maliciously, but without deliberation and premeditation, with her right hand, grasp and wrench the penis of Patrick Broderick, with intent to inflict a mortal wound; thus the urethra with the corpus spongiosum and corpus cavernosum were broken and severed; and that Patrick Broderick (her husband) died from the effects of the wound, on the eleventh day after the injury was inflicted."

The physicians who attended the case stated that there had been retention of urine with apparent extravasation; and it was not until after three days that they had succeeded in introducing a catheter and drawing off the urine.

At the post-mortem examination the "corpus cavernosum, left side, was found to be ruptured; corpus spongiosum mutilated, and urethra entirely severed; infiltration of urine into cellular tissue of penis, perineum, and into scrotum, with incipient gangrene."

[15] Ann. d'Hyg., XXX., p. 110. From Year-Book of Med. and Surg. 1867–68.

The defense set up was that the injury was received by falling down stairs,—the deceased having been in a state of intoxication at the time.

The verdict rendered was, "Guilty of manslaughter," and "not guilty of murder in the second degree."

Dr. Blackman refers, in the same journal, to several other cases of a similar injury. One of them is reported by M. Huguier.[16] There was a "complete rupture of the canal of the urethra and partial rupture of the corpora cavernosa, followed by death." "The patient, a vigorous man, æt. thirty-seven, had some affection of the ear, for which he applied a blister. Some days afterwards, while in bed with his wife, and having *des erections continuelles,* from the effect of the blister, had connection, the wife having the superincumbent position. The whole weight of her body was brought to bear upon the organ then in *violente érection,* and the latter was thrust against the thigh and perineum.

On account of retention of urine and failure to introduce a catheter, the bladder was tapped above the pubis. "Erysipelatous inflammation, with emphysema, showed itself at various points, and the patient died on the twelfth day after the accident. The post-mortem showed that the rupture of the canal was complete, and the corpora cavernosa were partially divided."

290. Extremities.—Wounds of the arms and legs are most often of significance from the interference with the function of the part, rather than from the danger to life. In considering traumatic dislocations it is necessary to exclude previous dislocations of the same joint, for a joint that has had its capsule ruptured once is very apt to be dislocated a second time on very slight traumatism. Fractures of the long bones of the extremities will cause disability for a length of time varying with the bone broken. Fingers take two weeks to heal; metacarpal bones, three weeks; forearm bones, five weeks; humerus and fibula, six weeks; tibia, seven weeks; both bones of the leg, eight weeks; femur, in cases where the shaft of the bone is fractured, ten weeks; and if the neck of the femur is broken, twelve weeks. If the patient is not well nourished and healthy, any fracture may require longer to heal, and poorer results may follow.

There was an account[17] not long ago of a man who used a novel method of procuring a livelihood, being a professional bone breaker. He would seek out a street in some city where he could find a bit of caved-in sidewalk or some other convenient spot, and then, at an ap-

[16] Bull. de la Soc. de Chir. de Paris, III., 514.

[17] Weekly Med. Rev., St. Louis, Apr., 1890.

propriate moment, fall down in it and break his leg. Then he would sue the municipality for damages, and live on the proceeds of his fall. It was claimed that he had thus beaten the Missouri Pacific and several other railroads, and Wichita, and other municipalities.

VI. Blood stains.

291. In general.— It is often desirable to be able to identify stains, bits of tissue, hair, etc., as coming from the human body or from some particular animal. Special treatises on these different subjects should be consulted; but blood stains are of such great importance that they deserve particular attention here.

The value of microscopical evidence of the character of stains and of hair is well illustrated by the following case,[17a] which occurred in Norwich, England. A female child, nine years old, was found lying on the ground, in a small plantation, quite dead, with a large and deep gash in the throat. Suspicion fell upon the mother of the murdered girl, who, upon being taken into custody, behaved with the utmost coolness, and admitted having taken her child to the plantation where the body was found, whence the child was lost by getting separated while in quest of flowers. Upon being searched there was found in the woman's possession a large and sharp knife, which was at once subjected to minute and careful examination. Nothing, however, was found upon it, with the exception of a few pieces of hair adhering to the handle, so exceedingly small as scarcely to be visible. The examination being conducted in the presence of the prisoner, and the officer remarking: "Here is a bit of fur or hair upon the handle of your knife," the woman immediately replied: "Yes, I dare say there is, and very likely some stains of blood, for, as I came home, I found a rabbit caught in a snare, and cut its throat with the knife." The knife was sent to London, and, with the particles of hair, subjected to a microscopic examination. No trace of blood could at first be detected upon the weapon, which appeared to have been washed; but upon separating the horn handle from its iron lining, it was found that between the two a fluid had penetrated, which turned out to be blood,—certainly not the blood of a rabbit, but bearing every resemblance to that of the human body. The hair was then submitted to examination. Without knowing anything of the facts of the case, the microscopist immediately declared the hair to be that of a squirrel. Now, around the neck of the child, at the time of the murder, there was a tippet or "victorine," over which the knife, by whom-

17a Chambers's Journal, Pt. XXXV., Dec., 1856.

ever held, must have glided; and this victorine was of squirrel's fur. The woman was convicted, and, while awaiting execution, fully confessed her crime.

292. General appearance.— The general appearance of stains due to blood is dependent upon their age, and the material upon which they are deposited. Recent stains are of a deep red color which, in the course of about ten days, becomes a dull brown. The rapidity of this change of color is increased by exposure to heat, sunlight, and certain chemicals. Other chemicals remove the color from the stain. If the blood falls upon a nonabsorbent surface the spot has a dark red almost black color and a polished surface. On the other hand, if the blood is absorbed by the material upon which it falls, the stain is reddish brown; or, if attempt has been made to wash out the stain, it may assume a yellowish color.

On colored stuffs, especially on those which are brown, blue, or black, the spot is more easily recognized by candle-light than by day. This important fact was discovered by Ollivier d'Angers. He had been directed to re-examine the room of a person accused of murder; having already visited it in the daytime, his second examination was conducted at night, and he now discovered, by holding a lighted candle near to the paper hangings, which were of a pale-blue color, a number of drops of an obscure, dirty red, which by day had the aspect of small black specks, and were lost in the general pattern of the paper. On a further examination, other spots of the same kind were found on the furniture. On the chimney jamb, which was painted blue, there was a large stain of blood, which appeared red by the light of the candle. The next day by daylight Barruel and Lessueur could not find these spots, and were obliged to make use of artificial light to discover them.[18] The same remarks will, of course, apply to spots of blood upon dark woollen cloth, in which they can also be detected by the stiffening of the material. If the stain be upon a weapon, such as the steel blade of a knife or poniard, the color will be of a pale-red where the layer is thin, and of a dark-brown color where it is of greater thickness.

293. Arterial distinguished from venous blood.— The distinction of arterial from venous blood, except when recently effused, is manifestly impracticable. Their chemical reactions are very nearly alike, and the only ground of distinction is in the more florid color of the former when recently poured out, and occasionally, also, in the form of the spots; those made by arterial blood being generally of an oval

[18] Briand, Méd. Légale, p. 782.

or elongated shape, in consequence of the blood having been thrown in a jet from the divided vessel. Moreover, in practice the two kinds of blood will almost always be mingled together, as it is difficult to conceive a wound being made which will not involve both sets of vessels. Dr. Taylor makes some interesting observations on the form and direction of spots of blood, suggested by the case of *Reg.* v. *Spicer*:[19] "At the top of the stair, and at the height of 4 or 5 feet above the level, several spots of blood were observed upon the brick wall, which was whitewashed. The spots took an oblique direction from above downwards, were of a pale red color at the upper part, but dark red below, terminating in a point consisting of the fibrin, and the greater part of the red coloring matter. Their form and regularity proved that they had proceeded from a small artery, and that the wounded individual could not have been very distant from the wall, while their shining lustre rendered it probable that they were of recent origin, and their well-defined termination in a firm coagulum showed that they had proceeded from a living blood vessel. The deceased had died from fracture of the skull and vertebral column, by a fall from the top stair; one branch of the right temporal artery was found divided, and this wound could not have been produced by the fall. It was, therefore, evident that a murderous assault had been made upon her at the top of the stairs; this had led to the spirting of the arterial blood on the brick. The height at which the spots existed, and their appearance, proved that the jet of blood had been from above downwards; thereby rendering it probable that the deceased was standing up, or that her head was raised at the time the wound was inflicted. Further, as the brick with the spots was on the left hand in the descent, and the wounded artery was on the right side, it is probable that the deceased was face to face with her assailant in the act of ascending the stairs, and that she was killed by being precipitated to the bottom." [20] It has been supposed that menstrual blood could be distinguished from other kinds by the absence of fibrin; but, although this discharge does not usually coagulate, it nevertheless contains fibrin and sometimes in very appreciable quantity. Dr. Franz Simon says: "There can be little doubt that there is fibrin in the menstrual secretion; its determination is, however, usually rendered impossible by the presence of a large amount of mucus, which seems to deprive the blood of its power of coagulat-

[19] Berk's Lent. Assizes, 1846. "Drory," by the same author. Guy's
[20] Med. Jur., p. 203. See also case of Hospital Rep., Vol. VII., 1851.

ing." [21] M. Robin has given as characteristic qualities of menstrual blood, that it contains, besides blood-disks, epithelial cells and globules of mucus (leucocytes);[22] but the latter elements are wanting whenever the menstrual flow is excessive, and in such cases, therefore, the liquid presents no distinctive characteristics.

The presence of fibrin in a blood stain is merely corroborative proof of the origin of the spot, but does not indicate with any certainty that the stain was derived from the blood of a living person; nor, on the other hand, does its absence give any support to the opinion that it was derived from a body already dead; since, if the stain be superficial, it may yield no traces of fibrin, even though it came from a living vessel; and coagulation in a dead body is not complete immediately upon the extinction of life. Hence, if the physician be able clearly to discover the traces of blood, it is superfluous to inquire for the presence of fibrin; and, on the other hand, this element of the blood could hardly be detected without ample proof of the nature of the fluid having been already obtained from other sources, since the quantity required would be considerable.

If the stain be upon linen or other similar stuff, it should be cut out and suspended by a thread in a small test-tube containing an amount of distilled water sufficient fully to dissolve the stain; the coloring matter of the blood soon begins to detach itself and seek the bottom of the vessel, the supernatant liquid remaining tolerably clear. The coloring matter will be dissolved in the course of a few hours; the fibrin, if any were contained in the spot, remaining attached to the stuff as a soft-grayish or rosy-white substance. The colored liquid in the test-tube may now be subjected to various tests; but one or two very simple ones are all that is necessary to establish the certainty of the presence of blood. Supposing the liquid to hold in solution the coloring matter of the blood and albumen, the effect of heat carried gradually to the boiling point is to coagulate it and destroy its color. According to the amount of albumen, will be the degree of coagulation; if the liquid contain merely a trace of it, boiling merely renders it opalescent. But the alteration of color is peculiar to blood. It changes from its more or less red color to a grayish-green without a trace of red, the upper portion of the liquid acquiring, also, an indistinct yellow tinge. The grayish coagulated portion may be redissolved with potassa, and acquires thereby a brownish-red color by

[21] Animal Chemistry, Syd. Soc. ed., 338.

[22] Ann. d'Hyg., 2 ser., X. 421.

refracted, and green by reflected, light. Another important test for blood is the absence of any change of color by the addition of ammonia, except when very concentrated or added in large quantity.

These tests will suffice to distinguish the colored serum of the blood from any stains resembling it. Thus, the red soluble dyes or stains from the juices of fruits are not coagulated by heat, nor do they lose their color on exposure to it, but the red color is changed either to a crimson or to a green, sometimes passing through a violet shade by the addition of ammonia.

294. Chemical tests; sodium tungstate test.— The sodium tungstate test for blood is of value when the questionable material is in solution, or in the urine, or in stains on cloth that may have been partly washed out. The blood is extracted from the cloth with some 60 cubic centimeters of water, to which a crystal of potassium iodid has been added, to aid in the extraction, and then filtered. The clear filtrate is strongly acidulated with acetic acid, and a few cubic centimeters of saturated solution of sodium tungstate (also strongly acidulated with acetic acid) are added. If the solution is strongly colored it may need 5 to 10 cubic centimeters of the sodium tungstate. The precipitate which is obtained is then filtered off and tested like the dried stains for hemin, or with the spectroscope. If the sodium tungstate gives no precipitate, the solution is to be boiled and allowed to stand for forty-eight hours, and then any slight precipitate collected by decanting off the supernatant liquid, and the residue tested for blood.

294a. Guaiacum test.— The guaiacum test is a valuable preliminary test if there is plenty of material to be examined. If the test is negative, blood is absent; and if the test is positive, we can only say that blood may be present, for the same reaction is given by a number of other substances. With blood the test is extremely delicate, detecting, according to Wormley, one part in five thousand. But it is important to note that guaiacum is blued by a number of substances, such as gluten, milk, and the fresh juice of various roots and underground stems (horse radish, colchicum, carrot, etc.) also by nitric acid, chlorin, the chlorides of iron, mercury, copper, and gold, the alkaline hypochlorites, and a mixture of hydrocyanic acid and sulphate of copper. Also by pus, saliva, and mucus, mixed with carbolic acid or creosote.[23]

Dr. Taylor, however, remarks that the fact that guaiacum is blued

[23] Tidy's Legal Med., 1882. Vol. I., p. 221.

by contact with these substances should be no objection to the test, for blood is not blued by guaiacum alone. It is only after the addition of an oxidizing agent that the blue color appears.

The test is made as follows: Two portions of the stained material are taken, and each moistened with a few drops of water. To one of them add a few drops of a freshly prepared tincture of guaiacum and to the other a few drops of fresh solution of hydrogen dioxid. Neither will be changed in color. Then to the first specimen add a few drops of the hydrogen dioxid solution, and to the second add a few drops of the tincture of guaiacum. Both specimens become a distinct, dark blue, and it is evident that neither reagent alone would have produced the change in color. In instances where the stain is on a dark-colored cloth, on which the blue color would not show, add the reagents, and afterwards press the fabric between two pads of white blotting paper, when the color will be absorbed by the paper. A number of impressions may in this way be obtained, and the reaction rendered apparent.

294b. Hemin test.— The formation of hemin crystals (Teichmann's test) has long been a standard for the medical profession and for the legal profession. The crystals are characteristic of blood, and can be obtained from most specimens of blood stains. If the hemoglobin has been decomposed by high temperatures, prolonged exposure to direct sunlight for a long time, or by a few chemicals, the test will not work. It has the great advantage that it requires but a single thread of material stained by blood to give the characteristic crystals.

The least fragment of suspected blood is placed upon a microscope slide. A drop of water and a crystal of salt (sodium chlorid) are put alongside of it, and the three covered with a cover glass, heated, and the water evaporated. Then a drop or two of glacial acetic acid is allowed to run under the cover glass and the preparation again heated till bubbles of gas come off. The preparation is then allowed to cool, and is examined under the microscope. Among the fibers of the thread, or close to it, are seen minute, elongated, rhombic crystals, having a yellow or brownish color. The crystals, as a rule, lie independent of each other, but may lie in pairs, crossed. They are wholly insoluble in water, alcohol, ether, and chloroform, and in acetic, phosphoric, and hydrochloric acids; slightly soluble in ammonia, and in dilute sulphuric or nitric acids. Entirely soluble in potassic hydrate, to which they give a green color. In strong sulphuric and in fuming nitric acids they are soluble; to the nitric acid they give a brownish-

red color. In chlorin water they become disintegrated and lose their color.[24]

295. Spectroscopic tests.—The spectroscopic test for blood is also characteristic of blood, the only disadvantage being that more apparatus is necessary for its performance. On the other hand the absorption spectra of blood and its products is as free from error in its diagnosis as any test that we have. But it is merely a test for blood, and does not tell us from what animal the blood came.

If the blood solution be placed before the spectroscope and examined, even in dilute solutions, it is seen that a portion of the red end of the spectrum as well as a much larger part of the blue end is absorbed; but the most striking fact is the presence of two strongly-marked absorption bands lying between the two solar lines marked "d" and "e." Of these two bands the one towards the red side, sometimes spoken of as band "a" is the thinnest, but the most intense; and, in extremely dilute solutions, the only one visible. Its middle lies a little to the blue side of "d." The other line, called "b," is much broader, lies a little to the red side of "e," its blueward edge, even in moderately dilute solutions, coming close up to that line. In solutions one centimeter in diameter these two absorption lines may be seen when the solution contains one gram of hemoglobin in ten liters of water. In the concentrated solutions the bands fuse, and more and more of the light is absorbed, till the only rays that pass through the hemoglobin solution are those in the green between the united bands and the blue which has been largely absorbed, and on the other side, between the fused "a" and "b" bands and the slowly advancing absorption of the red end.

If the hemoglobin solution be reduced by the action of a few drops of ammonium sulphid or of an alkaline solution of ferrous sulphate, kept from precipitation by the presence of tartaric acid, the spectrum of reduced hemoglobin as distinguished from that of the previous oxyhemoglobin is obtained. The spectrum of reduced hemoglobin shows a single band in the place of the two characteristic bands of oxyhemoglobin. This single band is fainter than the two bands of the previous spectrum, and has its center a little more to the red. The absorption of the blue end, too, is much less than in the oxyhemoglobin. Even in concentrated solutions some light comes through the interval between the central band and the blue end absorption. There are some coloring matters besides hemoglobin that give two

[24] Buchner and Simon, Virchow's Archiv, Vol. XV., p. 52.

absorption bands similar to oxyhemoglobin, or others that possibly give an absorption spectrum simulating that of reduced hemoglobin, but if the typical "a" and "b" lines are obtained and are changed on the addition of a reducing agent like ammonium sulphid to the one of reduced hemoglobin, there can be no question but that the solution examined contains hemoglobin. Carbonic acid passed into the solution of hemoglobin produces a further change in the appearance of the spectrum, in that now two bands similar to the oxyhemoglobin bands are present, but they are darker, narrower, and both of them displaced a little to the blue.

If the stain is not a fresh one the spectroscope may show the absorption of methemoglobin, a stable form of oxyhemoglobin. In this case there appears a distinct absorption band between the solar lines "c" and "d" and considerable absorption of the two ends of the spectrum, especially at the blue end. In still older stains, where the blood has been more or less decomposed and hematin formed, the stain is no longer soluble in water, and either acid or alkali must be used to get a solution. The acetic acid solutions give a spectrum similar to that of methemoglobin, though the single band is fainter and broader. The ethereal solution of this acid hematin (Stoke's acid hematin) allows the passage of light through a number of points in the blue region that, in the simple acid solution, is all absorbed. The alkaline solution of hematin gives an absorption spectrum similar to acid hematin, but less of the blue end is absorbed and the single band is moved to such a point that its blueward end coincides with the solar line "d." This alkaline hematin solution, like the hemoglobin solution, changes its characteristics on being treated with reducing agents. When ammonium sulphid is added to this alkaline hematin solution, the spectrum is very much like that of the two bands of oxyhemoglobin, but the two bands are moved somewhat to the blue end of the spectrum. If, in any suspected stain, we obtain this change from the single band of alkaline hematin to the double band of reduced hematin by the action of a reducing agent, the presence of blood can not be questioned.

If there is only a minimum quantity of blood present, that trace of the stain should be put upon a microscopic slide with a hollow center, and moistened with some physiological salt solution (¾ per cent), and examined with a microspectroscope. When the spectrum has been identified the moisture may be rotated away from the stain and the blood corpuscles examined and measured, and then a drop of re-

ducing agent added to the stain, if desired, and the reduced hemoglobin spectrum looked for.

Dr. J. G. Richardson, of Philadelphia, who has investigated most thoroughly the size of the corpuscles in different animals, concludes that it is possible to decide with certainty whether the corpuscles in a suspected fragment of blood-clot belong to man or to certain of the lower animals. This can be done only by very high powers of the microscope, those magnifying from 1,200 to 1,800 diameters.

Should the fragment of blood clot to be examined be very small Dr. Richardson has devised the following ingenious method of testing it:

"Procure a glass slide, with a circular excavation in the middle, called by dealers a 'concave centre,' and moisten it around the edges of the cavity with a small drop of diluted glycerin. Thoroughly clean a thin glass cover about ⅛ of an inch larger than the excavation, lay it on white paper, and upon it place the tiniest visible fragment of a freshly-dried blood clot (this fragment will weigh from one twenty-five thousandth to one fifty-thousandth of a grain). Then, with a cataract-needle, deposit on the centre of the cover, near your blood spot, a drop of glycerin about the size of this period(.), and with a dry needle gently push the blood to the brink of your microscopic pond, so that it may be just moistened by the fluid. Finally, invert your slide upon the thin glass cover in such a manner that the glycerined edges of the cavity in the former may adhere to the margins of the latter, and, turning the slide face upwards, transfer it to the stage of the microscope.

"By this method, it is obvious, we obtain an extremely minute quantity of strong solution of hemoglobin, whose point of greatest density (generally in the centre of the clot) is readily discovered under a one-fourth-inch objective, and tested by the adjustment of the spectroscopic eye-piece. After a little practice it will be found quite possible to modify the bands by the addition of sulphuret of sodium solution, as advised by Preyer.

"In cases of this kind, where the greatest possible economy or even parsimony of material is needful, I would advise the following mode of procedure for proving and corroborating your proof of the existence of blood, so that its presence in a stain may be affirmed with absolute certainty:

"From a suspected blood spot upon metal, wood, leather, paper, muslin, or cloth, scrape with a fine, sharp knife two or three or more minute particles of the reddish substance, causing them to fall near

the middle of a large, thin glass cover. Apply in close proximity to them a very small drop of ¾ per cent salt solution, bring the particles of supposed blood-clot to its edge, and proceed as I have already directed.

"After thus examining the spectrum of the substance, you may generally, by rotating the stage, cause the colored fluid to partly drain away from the portion, wherein, under favorable circumstances, should the specimen be blood, the granular white blood globules become plainly visible, as do also cell-walls of the red discs. Among the latter, if your mental and physical vision is keen enough, you can, by the aid of a one-twenty-fifth immersion lens and an eye-piece micrometer, measure a series of corpuscles accurately enough to discriminate human blood from that of an ox, pig, horse, or sheep.

"Lastly, to make assurance triply sure, lift up the thin glass cover, wipe off the tiny drop of blood-solution and clot you have been examining on the folded edge of a thin piece of moistened blotting-paper, let fall upon it a little fresh tincture of guaiacum, and then a drop of ozonized ether, which will at once strike the dark blue color of the guaiacum-test for blood.

"In this way I have actually obtained these three kinds of evidence—to wit, that of spectrum analysis, that of the microscope, and that of a chemical reaction—from one single particle of blood, which, judged by a definite standard (see Handbook of Medical Microscopy, Phila., 1871, p. 283), certainly weighed less than one fifteen-thousandth, and probably less than one twenty-five-thousandth, of a grain."

296. Microscopic test.— To determine the kind of animal from which the blood came, research, until within the last few years, has been limited to the microscopic examination of the blood, and the determination of the character and size of the red blood corpuscles. The red blood corpuscles of birds, fish, and reptiles are oval, nucleated cells; those of the camel and the llama are oval non-nucleated discs, and those of all other mammals are circular, biconcave discs. Hence, on the shape and structure of the cells all blood except that of mammals, and some of them, can be excluded. The differentiation between the other various species of mammals depends upon the measurement of the size of the cells. Of all the common mammals the red blood corpuscles of man are the largest,—1/3200 of an inch in diameter. The monkey comes next,—1/3400 of an inch; and next the dog,—1/3500 of an inch. The estimates of a number of observers—Gulliver, Wormley, Formad, Richardson, Schmidt, Marson, the

French Medico-Legal Society, Draguedorff, and Woodward—give, as the average diameter of blood corpuscles, measured in the fractions of an inch, the following:[25]

Mammal.	Mean Average.	Minimum Average.	Maximum Average.
Man	1/3200	1/3090	1/3330
Monkey	1/3400	1/3382	1/3412
Dog	1/3500	1/3246	1/3630
Rabbit	1/3650	1/3607	1/3968
Rat	1/3754	1/3652	1/3968
Mouse	1/3814	1/3743	1/4166
Pig	1/4230	1/4098	1/4268
Ox	1/4250	1/4200	1/4535
Horse	1/4300	1/4243	1/4600
Cat	1/4450	1/3907	1/4553
Sheep	1/5300	1/4912	1/5649
Goat	1/6200	1/6100	1/6366

The ordinary birds and fowls—chicken, turkey, duck, pigeon, quail, dove, and sparrow—have corpuscles that are oval, measuring 1/2000 by 1/3500, roughly. While the reptiles, batrachians, and fish have distinctly larger corpuscles, measuring 1/1000 by 1/2000.

When it comes to examining dried blood, however, the corpuscles are changed more or less in size and shape, and to be examined must be spread out under the microscope. To do this certain solutions must be used, and they are liable to distort the shape of the corpuscles. But the addition of fluids of less density than the blood cells, while it makes them swell up and become spherical, does not increase, but rather decreases, their diameter; and likewise fluids of greater density cause a shriveling of the cells and possibly a crenation of the cells, so that man's blood might tend to become the size of the other animals, but the blood of the other animals would not tend to approach that of man.[26] Hence, a measurement of a series of cells with an average from 1/3000 to 1/3400 would exclude animals whose blood cells average smaller than 1/4000 of an inch, which would exclude the most of the domestic animals,—pig, ox, horse, cat, sheep, goat.

Whether all animals can be ruled out and the blood positively asserted to be that of man from these fine measurements has been a

[25] Adapted from the statistics given in Peterson and Haines' text-book of legal medicine. The figures are given in fractions of an inch, for in that form they are better appreciated by the average juryman than in the centimeters which are used in scientific circles.

[26] Formad, H. F., Comparative Studies in Mammalian Blood, 1888.

question of much discussion, a number of authorities being on each side. A number of the more recent authorities do consider it possible. White examined[27] and measured two hundred red blood corpuscles, assigning to each a definite length, from each of a number of animals. We quote his measurements in fractions of an inch for man, dog, and pig,—the animals with the corpuscles most likely to come into this field.

Length.	Man.	Dog.	Pig.
1/2700	2	..	..
1/2800	6	..	..
1/2900	14	..	..
1/3000	32	..	..
1/3100	32	..	..
1/3200	46	6	..
1/3300	37	17	..
1/3400	14	23	2
1/3500	9	24	2
1/3600	4	58	4
1/3700	1	23	17
1/3800	2	12	21
1/3900	..	10	9
1/4000	..	9	31
1/4100	..	12	34
1/4200	..	3	15
1/4300	..	1	7
1/4400	..	2	11
1/4500	..	..	9
1/4600	..	..	8
1/4700	..	..	18
1/4800	..	..	4
1/4900	..	..	4
1/5000	..	..	1
1/5100	..	..	2
1/5500	..	..	1
Total.	200	200	200
Maximum.	1/2727	1/3203	1/3473
Minimum.	1/3870	1/4400	1/5500
Mean.	1/3197	1/3657	1/4227

These measurements certainly seem distinct enough to show the difference between human blood and that of lower animals, and in many cases it is not necessary to identify the species of animal from which the blood came, but merely to say whether the blood may or may not have come from a special species of animal, or from man.

[27] White. Medico-Legal Journal, New York, 1894–95, Vol. XII., p. 419.

And that may be determined with certainty in many cases. But the difficulties connected with the measurement of the red blood corpuscles in very old stains is such that the test has been considered unreliable by a number of eminent authorities; Vibert,[28] Wormley, Mason,[29] Ewell,[30] and Chapman, [31] among them. Hence, the distinction by this method between the different species of mammalian blood may be subject to question.

297. Biologic test.—In 1900 Uhlenhut[32] introduced a new biologic test which has taken its place at the head of the list of tests for human blood and the differentiation of the blood of different animals. It is based upon the general principles that the animal organism generates within itself, in self defense, bodies which antagonize or neutralize injurious substances to which it has been subjected. The principle is not a new one, but has been long established in medicine, and this new test is merely a new application of well known facts. The test depends upon the fact that when the product of one animal (in this case, human blood serum) is injected into an animal of another species (a rabbit), in the course of time the blood of that rabbit has developed in it a product which will precipitate any other specimen of human blood, and, under the proper conditions, will not precipitate the blood of any other animal.

The test is carried out as follows: With proper surgical care there is injected into the peritoneal cavity of a rabbit every two or three days for five or six times, about 8 to 10 cubic centimeters of human blood serum, which may most conveniently be obtained by expressing blood from a recently delivered placenta, and keeping it aseptic. A week after the last injection into the rabbit the carotid arteries are cut and the blood collected, put on the ice and kept. The humanized rabbit serum separates clear as the clot contracts. This is collected and added to the solution of the stain to be examined. The stain should be placed in distilled water or physiological salt solution and shaken till the color of the solution is very faintly discernible. (In concentrated solutions the precipitate will be formed with blood serum of other animals, but the more dilute the solution and the more prompt the precipitate the greater the probability that the blood is human.) Or, if the stain dissolves easily it should be diluted

[28] Vibert, Nouv. Dict. de Méd. et de Chir. Pract. p. 408, and Arch. de Physiol., 1882.

[29] Mason, Ann. d'Hyg., 1885, 542.

[30] Ewell, Medico-Legal Journ., New York, Sept., 1892.

[31] Chapman, Med. Jurispur., 3d ed., 1903, p. 88.

[32] Uhlenhut, Deut. Med. Wochenschr., Feb. 7th, 1901.

till the color is very faint. Strube[33] obtained marked reactions when the blood to be examined was diluted to one part in a thousand of salt solution. With no blood other than the homologous did he get a positive test in a dilution greater than one part in one hundred. To 2 or 3 cubic centimeters of the diluted blood-stain solution, in a test-tube, are added about ten drops of the humanized rabbit serum. If the blood stain is one of human blood, there appears a precipitate in the solution in about ten minutes which is complete and flocculent in about half an hour. If the stain is from the blood of some other animal there may appear a precipitate after several hours, but there will be no prompt appearance of the precipitate, as with human blood.

The test has been tried under many varying conditions and found very satisfactory. Layton considers[34] that in dilutions of one part in five hundred the differentiation from all species of animals, even monkeys, can be made. Nuttall[35] tested forty-six specimens of blood from apes and found that certain species gave a precipitate equal to that of man, but that other species, while they gave precipitates, did not give as great a quantity. Of some five hundred kinds examined no other animal's blood except monkeys gave the same reaction. The age of the blood stain has no influence on the test, nor, except in a very few instances,[36] does the material on which the blood is deposited.

The test has been accepted by several of the European governments,[37] as in the case of the Kishineff massacres in Russia. In the United States, in the case of the *State of Delaware* v. *Elmer Collins,* acquitted of the murder of his wife by the court of general sessions, Delaware, on March 25, 1903, the test was accepted as better than any other, but not free from reasonable doubt.[38] In the case of the *Commonwealth of Pennsylvania* v. *Bechtel,* for the murder of her

[33] Strube, Deutsch. med. Wochenschr., June 2, 1902.

[34] Layton, Amer. Medicine, June 6, 1903.

[35] Nuttall, Journal of Hygiene, Vol. I., No. 1, 1901; Brit. Med. Jour., Sept. 14, 1901, and April 5, 1902.

[36] A most valuable paper on this question, from the forensic point of view, by Graham-Smith and Sanger, is to be found in the Journ. of Hygiene, Vol. III., No. 2, 1903.

[37] Russky Vratch, II., 37; an article by P. N. Diatroptoff.

[38] The following report of the case is given in the New York Med. Journ. and Phila. Med. Journ., March 12th, 1904, by Dr. Robin, the physician who made the blood examination:

On the morning of April 12, 1902, a woman, the wife of a young farmer, Elmer Collins, residing near Laurel, Del., was found murdered in the barn. She was lying on her right side, with the face somewhat buried in the ground, and with one foot projecting over the doorsill. Her skull was fractured in the occipital and parietal regions, and the throat cut below the cricoid cartilage, two attempts at cutting having been made, and the wound concealed by a fascinator which was tied around the

daughter, the test was accepted as authoritative in spite of the arguments of the defense that the test is still in its infancy and not yet

neck. The husband was accused of the crime, and appeared as the defendant in the case.

The trial, which was the most extensive ever held in the old court house at Georgetown, presented many dramatic situations, psychological studies, and points of medico-legal interest; but, as the defendant was acquitted on the ground of a "reasonable doubt," a discussion of the more interesting medico-legal points brought out in this case would not be justifiable, now that he is legally an innocent man.

The theory of the state was that the woman was murdered in the corncrib and then dragged to the adjoining barn. Evidence in support of this theory consisted in the blood-stained floor and part of the partition in the corncrib, the presence of raveling from her dress beneath a projecting nail on the doorsill of the barn, the ends of the threads pointing inward and the position of the woman with her instep resting over the doorsill. The defense was forced to admit this theory to be correct, only asserting that somebody other than the husband committed the deed. In view of this admission, and in view of the fact that the presence of blood in the corncrib was not accounted for by the defendant, who stated that he had not seen that blood there before, we are justified in assuming that the theory of the state, at least as to the place where the murder was committed, was substantially correct. This theory was founded on the presence in the corncrib of supposed human blood, the identification of which was made by the writer.

Several pieces of board, chicken manure, and chips of wood spotted with what looked like blood, were submitted to me for examination. No indications were furnished as to the place or places from which these objects were obtained. Only after the examination was complete and the results communicated to the attorney general, did the writer learn that some of the pieces were taken from the flooring and partition of the corncrib, others from the chicken house, the chicken manure from the garden, and again others from the stable.

The following tests were made:

1. The nature of the stains was determined by the guaiacum and hemin tests. As these are well known, there would be no need of describing either of them, were it not that a slight but useful modification in the technique of the guaiacum test was introduced by the writer. The test as modified is as follows:

The alcoholic solution of guaiacum is freshly prepared by dropping a few pieces of the gum into a beaker containing some 95 per cent alcohol. In about five or ten minutes the alcohol will have dissolved enough of the gum for the purpose. A good-sized piece of white filter paper is then moistened with the solution. A drop or two of distilled water is placed over the suspected stain, and gently rubbed by means of a platinum needle. A loopful of the solution of the stain is then placed on the guaiac filter paper, and turpentine that has been aërated for thirty minutes poured over the resulting spot. In the presence of the slightest trace of blood, the spot formed by the suspected solution will gradually turn blue. By the use of the filter paper, the reaction is rendered distinct and unmistakable, and, as has been shown in this case, can be demonstrated to a jury much more satisfactorily than by the ordinary methods. A number of other substances which oxidize guaiacum were tried with this method, but in no instance could the reaction be mistaken for the characteristic spot resulting from blood. In the case of iron and other oxidizers the blue spot appears at once and gradually fades, whilst in the case of blood the spot turns blue slowly and persists. Moreover, other oxidizers turn the guaiacum blue before the addition of turpentine. I am convinced by the results of experiments that the guaiacum test, performed as outlined above, is as delicate and certain as any test for blood.

2. Microscopical examination. This examination was made in the usual manner. The most satisfactory menstruum was found to be Ranvier's iodized serum (potassium iodid, 2 parts; saturated watery solution of iodin, 100 parts). The reason for this preference is that the iodin stains starch and vegetable cells as well as spores of molds which may closely re-

established. It was on other evidence that the prisoner was acquitted on January 25, 1904.

semble blood corpuscles. The measurement of red blood corpuscles in very old stains is not satisfactory. The entire disintegration of the clot and the separation of individual corpuscles in sufficient numbers for accurate results are difficult and sometimes impossible. The corpuscles, when separated out, are not fixed and stationary, and the slightest movement prevents accurate measurement. Besides, for medico-legal purposes, the adverse opinion as to the value of the method, expressed by such eminent authorities as Vibert, Wormley, Mason, Ewell, and Chapman, completely undermines the medico-legal status of this method. The only real value of the microscopical examination of the blood is in distinguishing mammalian from avian blood, and in our case the microscope enabled us to exclude with absolute certainty some blood stains which were made by bird's blood, thus indicating that the murder was not committed in the chicken house, as was at first suspected.

3. The biological or serum test. To apply this test three rabbits were treated with human blood obtained from the placenta. Several physicians were supplied with sterile, wide-mouth bottles, and instructed to slip in the placental end of the cord as soon as severed, and allow the blood to run into the bottle. Usually from half an ounce to two ounces of blood were obtained each time. The bottles were placed in the refrigerator, and the serum drawn off on the following day. At first, 5 c. c. of the serum were injected into each animal. Three days later 8 c. c. were injected, followed by 10 c. c. five days later, and this dose was repeated until six injections had been made altogether. On two occasions the blood which had been kept in the refrigerator for a week was used without any ill results. Except for a slight elevation of the temperature and a general indisposition following the first two injections, the animals showed no bad effect from the treatment. At the expiration of one week after the last injection, one of the rabbits was bled to death by severing the jugulars, and about 25 c. c. of blood obtained in a small Erlenmeyer flask. The blood clotted rapidly and firmly, and about 15 c. c. of perfectly clear serum were obtained on the following day. This serum was tested on human blood, but no specific reaction was obtained. The mixture of the solution of blood and antiserum remained perfectly clear for ten hours, when a slight cloudiness appeared. Quite discouraged by these unlooked-for results, I wrote to Dr. Patek and Dr. Bennet, who had employed this method in a medico-legal case with satisfactory results. These gentlemen could not explain my failure, and sent me about 2 c. c. of antiserum which they had obtained a month previously. This antiserum I tested on human blood and obtained a marked specific reaction in two hours. An inquiry directed to Professor Flexner elicited the reply that he could offer no explanation for my failure. Fearing that perhaps the amount of blood injected was not sufficient to produce a strong antiserum, I injected into one of the remaining rabbits two more doses, 10 c. c. each, of placental blood, at intervals of five days. Ten days after the last injection I opened the right femoral artery between two loosely held ligatures, and by means of a small glass cannula obtained about 5 c. c. of blood. The vessel was then ligated and the wound closed. No ill results followed this operation. The serum obtained from this rabbit's blood was tested as before, and found to possess marked precipitating properties, giving the specific reaction with human blood, highly diluted, within thirty minutes. This antiserum was used for the medico-legal test according to the following method: One-drachm long homeopathic vials were obtained. A portion of each blood stain was scraped off into an Erlenmeyer flask, and normal salt solution added. The flask was agitated at frequent intervals until the solution became perceptibly colored. It was then filtered twice and enough salt solution added to the filtrate to make the red tint barely perceptible. The vials were then filled, leaving just room enough for the antiserum, of which two drops were added to each vial. The vials were stoppered and placed in the incubator at 37° C. At the end of every five minutes for thirty minutes, and every half hour for two hours, the

mixtures of blood and artiserum were inspected by transmitted light and against a black background. If no reaction was obtained within that time the results were considered negative. The following stains were tested:

1. Stain on an ear of corn, stain six months old.
2. Stain on a large piece of board, mixed with sand and dirt, stain six months old.
3. Stain on a small square piece of board, length of time unknown.
4. Chicken manure.
5. Stain on a piece of rough board.
6. Stain on a hoe, mixed with sand and lime.
7. Stain on a chip of bark.
8. Stain on a block of wood.
9. Fresh human blood.
10. Human blood on filter paper, several weeks old.
11. Fresh chicken blood on filter paper.
12. Calf's blood on paper, stain two weeks old.
13. Horse's blood serum, several weeks old.
14. Rabbit's blood on filter paper.
15. Stain on quilt with which the murdered woman was covered, stain six months old.

Nos. 1, 2, 5, 9, 10, and 15, showed a distinct clouding within thirty minutes, the precipitate gradually subsiding to the bottom. All other solutions remained perfectly clear for twelve hours, when a slight clouding appeared. The tests were repeated with another portion of rabbit's serum, obtained several days later, from the left femoral artery of the same rabbit, with identical results. The objects Nos. 1, 2, and 5, as was subsequently learned, were obtained from the cornerib; Nos. 3, 7, 8, from the chicken house, and the manure from a tomato patch in the garden. (The microscopical examination of stain 3 showed nucleated red corpuscles.)

These findings formed the basis for the theory that the woman was killed in the cornerib, and then removed to the barn,—a theory which seemed to be supported by other evidence. It is thus seen that by means of the serum test all blood stains which we had reason to believe were not made by human blood were excluded with a degree of certainty not attainable by any other known method. On the witness stand I made the statement that this new test was superior to any other for the identification of human blood, and if positive rendered the presence of human blood highly probable. I was not willing to state that the presence of human blood was established "beyond a reasonable doubt," for the reason that this was my first experience with the test, and I did not feel that I was ready to assume the moral responsibility. I felt confident, however, that, all things being equal, this test furnished more reliable evidence of the presence of human blood than could have been attained from the most exact measurements of corpuscles. As to the latter the warmest advocates of the method claimed only a "consistency with a theory." From a perusal of the rather voluminous literature and my own experiments, I am now convinced of the specific nature of the serum test. Whatever discrepancies may be discovered in the observation of various authors, they can well be ascribed to faulty technique. In this test, as in the Widal test, both dilution and time should be taken into consideration. Given a high dilution (a barely perceptible tint to the solution) and a short time (half an hour to two hours), the appearance of distinct clouding is conclusive evidence that the blood is homologous with that used in the immunization. The lower the dilution and the longer the time required to produce the specific reaction, the less likelihood is there that the blood is that sought. Under these circumstances the serum test should be accorded the same position in forensic medicine as that given to other expert evidence susceptible of scientific demonstration.

The court was willing to accept the new serum test as superior to the older method of measuring the corpuscles, and the jury was charged accordingly. The defense was also willing to accept the new test as reliable, being guided, I believe, by the opinion of the authorities whom they consulted.

Conclusions.

1. Human blood can be distinguished from that of other animals, except, perhaps, monkeys, by means of antiserum.
2. Antiserum may be obtained by immunizing rabbits against human blood.
3. For immunization it is most convenient to employ the blood obtained from a human placenta, which can be secured aseptically without much difficulty.
4. From six to eight injections, 8 to 10 c. c. each, should be made at

intervals of from three to five days, and the serum secured at least a week after the last injection.

5. At the end of the immunization period it is well to test the potency of the antiserum by securing a small quantity of the blood from the vein of the ear or any of the deep-seated vessels.

6. To obtain the serum from rabbits for testing purposes it is not necessary to sacrifice the animal, as sufficient serum can be secured from any of the large veins or arteries, the femoral being the most accessible.

7. Care should be taken to have all solutions perfectly clear and the blood sufficiently dilute. The antiserum should be used pure.

8. Control tests from different domestic animals should invariably be made.

9. With all the precautions observed, a distinct clouding within thirty minutes, and a precipitate within two hours, is certain evidence that the blood is human.

10. In medico-legal cases the tests should be repeated at least twice, so as to exclude any possibility of error.

CHAPTER II.

BURNS AND SCALDS.

298. Agents causing burns.— A burn is the result of the action of heat upon the body. The heat may be brought in contact with the body either by a hot, solid substance, such as a red-hot iron or a burning brand, by hot liquids or molten metals, or by highly heated gases, such as steam. Certain substances by their chemical action are also distinctly caustic, and have results which are considered also as burns; and here, too, are classed the results of friction on the body in what are called "brush burns."

Heated solids produce distinctly circumscribed burns which show the portion of the body that was in contact with the heated substance. The burn may be severe or slight, depending upon the temperature of the body and the length of time that it is in contact with the flesh. Solids that are burning give a central area similar to that of the hot solid, and, in addition, a surrounding zone of less burning, which is not so sharply defined, and in which the hairs on the skin, if exposed, are singed. Portions of the body which are protected by clothing held firmly to the skin, as in the region of the belt or the garters, are

usually protected from the action of flames. Liquids give a more diffused area of burning, and a comparatively mild degree of burn. There is no singeing of the hair in the vicinity. Such hot liquid burns are popularly called scalds. Burns from gas in the state of combustion or flame produce the most severe burns, with combustion of the tissues of the body. Burns by solid caustics are similar to those by hot solids, though no high temperature is needed for the action of the caustic. Liquid caustics produce burns similar to those of hot liquids, but differ in that their line of action may be much more limited; for a single drop of sulphuric acid, for instance, running over the skin will cause a distinct burn, while a single drop of boiling water running over the skin would soon become cooled off and lose its effect. Brush burns are such as follow after friction from a rope, for instance, running through the hands, and such burns are sharply limited to the area over which the rope ran.

299. Classification according to severity.—According to their gravity burns have been classified by Dupuytrens as follows:

1st degree: Reddening of the skin, without the formation of blisters.

2d degree: Formation of blisters, which contain clear or sometimes opaque serum of a yellowish color, at times tinged with blood.

3rd degree: Destruction of the external surface of the skin. The portion which has lost its vitality is seen in the form of an eschar which is soft and yellow if made by a hot liquid, but hard and brown or black if made by a heated solid, or burnt with flame. Surrounding this there is usually an area burnt to the first or second degree.

4th degree: Disorganization of the whole thickness of the skin. These burns differ from the third-degree burns only by the greater thickness of the sloughs.

5th degree: Not only the skin, but also the subcutaneous cellular tissue and a portion of the muscles, are destroyed. The injury is graver than the preceding form, though the external appearances are not strikingly different.

6th degree: Complete carbonization of the burned part.

300. Danger from burns; extent.— The danger from burns is proportional rather to the extent of surface involved than to the depth of the burn. Burns of the first degree, covering two thirds of the body surface, are rarely recovered from. Burns of the second degree, or any of the severer degrees, involving one third of the body, are almost always fatal. Though Maschka reports the case of a man who, while drunk, had whisky poured over him and lighted. More

than one half of his body was burnt, and yet he recovered, though with scars such that he had to walk all bent up. Children seem especially susceptible to the effect of burns. Vibert describes the case of an infant thirteen days old that received a burn which covered an area 4 by 6 centimeters on the abdomen, and involved only the superficial portion of the skin, in which the infant died on the sixth day. Adults, also, at times show a marked idiosyncrasy to burns. Vibert also quotes[1] the case of a man twenty-nine years old who, by an explosion of gas, was burned superficially on the face and hands; the epidermis was detached only in a few limited areas. The man died on the twentieth day, and showed well-marked internal lesions due to the burns.

300a. **Complications.**— Burns which are not immediately fatal may, in the course of their healing, develop symptoms due to the infection of the open surface, or to embolism from the coagulated blood in the vicinity of the burn, or to some of the rarer complications, such as ulcers of the duodenum. If the burn involves the mouth, as in burns by gases, ulceration and edema of the pharynx and larynx may be very important complications.

300b. **Burn scars.**—In the cases where death does not follow burns the resulting scars may be very disfiguring or even disabling from their vast extent and marked contraction, as in the case just noted from Maschka. Burns of the first and second degrees produce merely pigmentation scars. Burns of the third degree leave scars that are on the level of the skin, white and shiny. Burns of the fourth degree leave characteristic sunken scars, irregular in shape, radiating, and puckered. Burns of the fifth and sixth degrees show the loss of tissue.

301. **Causes of death.**—The cause of death after burns is dependent upon several factors. In many cases where the person is caught in a burning room, death is due to asphyxia from the gases inhaled rather than to the burn itself.[1a] Shock is often a very important element, especially in cases where death is immediate. In many cases there is an absorption of the products of the burn from the burnt surface. There are alterations in the blood, due to the heat, which are very detrimental; and the function of the skin is decreased, due to its destruction. In addition to these factors there is

[1] Vibert, Précis de Méd. Lég.

[1a] Casper (Ger. Leichenöff. 2te Hund. Cases 97 and 99) describes the post-mortem examinations of two children who perished in a room that had been set on fire. In them the trachea was filled with frothy mucus in which particles of soot could be recognized easily. It is probable, therefore, that the immediate cause of death was suffocation.

a congestion of the internal organs, and often a distinct nephritis, with even blood-stained urine.

302. Post-mortem examination; local lesions.—The post-mortem examination of the local lesion in the first degree burns may be entirely negative, because the reddening of the skin disappears after death; there may, however, be a bran-like desquamation of the skin. Those of the second degree will show the characteristic blebs, which should be distinguished from the blebs due to disease, and show the eschar on the area burnt. In burns of the sixth degree, where there has been carbonization of the tissues, the charred area may have been so cracked in the burning as to simulate an incised wound of the part. Bodies that have been exposed entirely to the flames, and have been more or less carbonized, show contractures of the muscles so that the body may assume the attitude of a "boxer." The retraction of the skin around the mouth exposes the lips and the teeth. Later the skin bursts, and possibly the deeper tissues, opening the abdomen, thorax, or even the skull by one or both layers of bone. The exposed viscera are shriveled or charred. The last viscera to be affected are the pregnant uterus, and the bladder, filled with urine. The bones even become calcined, and are liable to fall to pieces rather than to fracture.

302a. Internal lesions.— The internal lesions in the very acute cases are usually negative. If the person has lived several days there may be congestion of the internal viscera, cloudy swelling of the kidneys, hyperemia of the meninges, often edema of the brain, ecchymoses in the serous and mucous membranes, with ulceration of the duodenum. If the person has lived longer, there is advanced fatty and granular degeneration of the internal organs, and often hypostatic or embolic pneumonia, or a broncho-pneumonia, due to the irritation of the bronchi from the hot air. There may be sepsis from the wound infection or venous thrombosis from the thickened blood.

302b. Other causes of death.— The examination of the body of a person who has been burned to death should always include a search for other causes of death. A case is reported in Henke's Zeitschrift in which two old people were found burned in their house; the fact of their having been previously stunned, if not killed, by blows upon the head, was ascertained by the existence of fractures of the skull, under which coagulated blood was found effused upon the dura mater. The criminal was not discovered for a long time, but the circumstances of the murder were betrayed by an associate. A singular circumstance was observed in this case, *viz.*, that, although the bodies

were both almost destroyed by fire, that portion of the head by which the murder was revealed had been spared.[2] Dr. Wyman, in his evidence in the Webster case, stated that "some of the fragments of the bones of the skull (of Dr. Parkman) had the appearance of having been broken previous to calcination, or being burned with fire. Calcination," he remarked, "removes the animal matter which gives to bone its tenacity; before this is removed, it breaks with sharp angles, and is more likely to splinter. Common surgical experience shows this. After calcination, the bone is more likely to crumble." [3]

In an interesting case of assassination, related by Casper, the presence of contused wounds and extravasated blood upon the forehead and face of an aged woman, and vesications from burning upon some portions of the body, gave indubitable evidence of violence during life. Here the criminal confessed that he had struck his victim in the face with his fist and a paving stone, by which she was rendered senseless; but, with a strange refinement, would not acknowledge that he had designedly set fire to the apartment in which the half-consumed body was found.[4]

303. **Duration of life after fatal burns.**—Mr. Erichsen found[4a] that of fifty fatal cases from burns there died:—

During the first four days,	27	cases
From the fourth to the eighth day,	6	"
In the second week,	8	"
" third "	2	"
" fourth "	2	"
" fifth "	4	"
" sixth "	1	"

304. **Post-mortem burns; first degree; reddening.**—Burns made upon the dead body, if of the slighter degrees, are distinct from those made on the living body. Burns of the first degree can not be produced on the dead body, because there can be no inflammatory reddening. Even the redness of the first degree burns produced during life disappears after death.

304a. **Second degree; vesication.**— Likewise burns of the second degree cannot, under ordinary circumstances, be produced on the dead body. In some cases there may result blebs filled with gas. Blebs containing serum were never obtained by Casper or Hofmann. In

[2] Henke's Zeitschrift, 1844, p. 284.

[3] Bemis's Report of the Webster case, Boston, 1850.

[4] Gericht. Leichenöff, sup. 1stes Hundert, Fall. 96. On this subject see a paper by M. Tardieu, Ann. d'Hygiène, Jan. 1860, p. 124.

[4a] J. E. Erichsen's Science and Art of Surgery, 1878, Vol. I., p. 220.

anasarcous bodies, however, where the tissues are full of transudate fluid, burns after death may produce blebs full of a clear, watery liquid, but not the serum of ante-mortem burns.

Orfila says that vesication manifestly denotes that the burn was made during life. According to Dévergie, if boiling water or a red-hot iron be applied to the skin of a person, ten minutes after death, neither redness nor vesication will be produced; and it is not possible to mistake a burn made after death for one which was made before it. Dr. Christison made six experiments, with a view of satisfying himself as to the distinction. He says that it is evident from these that the application of heat, even a few minutes after death, causes no effects which can be mistaken for those induced by the vital reaction. In one case, in which a young man lay in a hopeless state of coma from poisoning with laudanum, a hot iron was held on the outside of the hip-joint, and half an hour after death, a red-hot poker was applied to three places on the inside of the arm. It is stated that vesications were formed in both instances, those made during life contained serum, and those formed after death air. Dr. Taylor says that he has performed many experiments on the bodies of infants, eighteen and twenty hours after death, both with boiling water and heated solids; but that in no case did he observe any kind of vesication to follow at that period. The skin became shriveled, and was partly destroyed by the heat, but no blisters were produced. Dr. Casper made four experiments with the same result. It is stated, however, by MM. Leuret and Champouillon, and also by Dr. Wright, of Birmingham, that serous blisters may be produced after death, in anasarcous subjects. In M. Leuret's experiment, the blister contained an abundance of reddish-colored serum. In those of the other two observers, the serum was not tinged with blood. In one of Casper's experiments, however, a flame was held close to the dropsical scrotum of a dead body; the skin nearest the flame shriveled up and acquired a shining silver-gray surface, but no blister was raised. We think, however, it may be fairly objected to this and the preceding experiments of Casper, alluded to, that the degree of heat employed was much beyond that necessary to produce vesication. In two of the other three experiments, cotton wadding soaked in turpentine was placed in contact with the skin and lighted. In one case it was allowed to burn four minutes, in the other three and a half. In the third experiment, the flame of an oil lamp was held three minutes in contact with the back of the foot. In each case the skin was superficially roasted. The result might, perhaps, have been different had

a less intense heat been employed. Casper also alludes to a fact of some importance in this connection. He says that it is a common practice to drop burning sealing-wax upon the pit of the stomach immediately after death, with the hope of reviving the defunct, but that in the large number of bodies he has seen, in which this unintentional experiment had been performed, not one presented a trace of vesication in consequence. It may therefore, we think, be fairly inferred that, with perhaps the exception of anasarcous bodies, the presence of vesications upon the skin may be looked upon as a sure indication of the burn having been made during life, or immediately after, while the body is still possessed of a certain degree of organic vitality. Their absence, however, will be no evidence that the burns were not made upon the living person, since it is very possible that only the more serious results of burning may be found. There is, however, another sign of burning during life which cannot be simulated upon the dead body, *viz.*, the congested and inflamed state of the skin around the blister or the burn, which is indicated by a red line which gradually merges into the color of the surrounding skin. This red border remains after death, and experiments made by Drs. Christison and Taylor prove that it cannot be produced by the application of heat to the dead body. The same may be said also of the red and granulated appearance of the true skin under the blisters.

The only experiments which appear to throw doubt upon the correctness of these conclusions are those of Drs. Maschka[5] and Gräff.[6] The first of these gentlemen found, in his experiments upon the dead body, that when the flame was brought in contact with the skin, blisters were formed of various sizes, from that of a pea to that of an apple, within the space of one minute. These burst with a noise and discharged serum. No redness, however, was observed under or around these vesications until the denuded surface had been some time in contact with the air. The application of boiling water produced the same result. When the heat was maintained, the further changes could not be distinguished from such as would have been caused upon a living person. Dr. Gräff, whose object in his experiments was to ascertain the length of time required to consume a head to a degree similar to that in which this portion of the body of the murdered Countess of Görlitz was found, laid the emaciated body of a person aged about fifty years upon a table in such a manner that the head hung over one end of it. A vessel containing alco-

[5] Canstatt's Jahresbericht, für 1852, Vol. II., p. 46.

[6] Viertljhrschr. f. d. prakt. Heilk., 1850, Vol. IV., p. 123.

hol was placed between 5 and 6 inches below it, and the spirit set on fire. The integuments of the head were consumed in about half an hour, and, at the distance of from 10 to 15 inches from the burning parts, white vesications were formed, some of which had a moist and red base, and a pale-red areola around them. Accident furnished Dr. Taylor with evidence of the same nature. "A man was accidentally drowned; his body was immediately taken from the water, and soon afterwards placed in a warm bath"—within ten minutes after apparent death. The water was so hot that portions of the cuticle came off when his body was removed, for it was found impossible to resuscitate him. On an inspection of the body, over a considerable portion of the skin, especially of the extremities, there were several vesicles filled with bloody serum. There was no anasarca here to account for their production; and the fact of their occurrence appears to bear out the view of Dr. Wright, that the production of a serous blister on the dead body depends upon the amount of organic life remaining in the body. The man was pulseless and, to all appearance, dead when placed in the hot bath; hence the effects of hot liquids on the living and the recently dead body are proved by this case to be very similar.

These experiments are directly in conflict with those before enumerated, and although the weight of authority and of facts is opposed to the possibility of the production of vesications after death, which can be mistaken for those which result from the application of heat during life, yet, as these experiments seem to prove the contrary, the question still remains open, except, perhaps, when the comparison lies between the effects of burns upon the living body and upon one in which life has been extinct for a considerable length of time. In such a case we do not think it would be difficult to show important means of distinction, depending upon the absence of vital reaction.

304b. Third degree; eschar.—Burns of the third degree, before death, are covered by a hard, bark-like tissue, due to the coagulation of the blood in the capillaries during life. Such dense, bark-like eschars are not formed after death, except, possibly, in areas where there is a hypostatic congestion of the tissues.

Prof. W. Hoffmann claims that, by means of the microscope, burns of the skin, of the third order, originating before death, may be distinguished from those inflicted post-mortem.[7]

A piece of the leathery skin is cut out and held up to the light;

[7] Hofmann, Journ. Psychol. Med., Vol. IV., p. 639; and in Allg. med. Cent. Ztg.

when, if the burning took place before death, the apparently uniform brownish-red color resolves itself into an exceedingly fine net-work of capillaries, of a rusty color traversing the dried corium. This is made clearer by a pocket microscope. The injection is as complete as if produced artificially. This observation is confirmed by the microscope by showing the capillaries of the corium through almost its entire extent, full of dried, rusty-brown blood.

The existence of this condition here described proves that, at the time of the burning or scalding, the capillaries must have been full of blood; the body must, therefore, have been alive. In bodies in which the burns were of post-mortem origin, the author has never found a trace of injection of the dried corium, the capillaries of which, under the microscope, were seen to be empty; in the subcutaneous cellular tissue the vessels are almost empty, but a few larger branches contain a small amount of dried blood.

304c. **Fourth degree and more severe; carbonization.**—Burns of the fourth and higher degrees are not characteristic, but if they are extensive Hofmann considers them in all probability post-mortem.

305. **Time for combustion of body.**— The time taken for the destruction of the body by fire depends a good deal upon the kind of fire the body is exposed to and the size of the body. In the cremating furnaces carbonization takes place in a few minutes, but complete incineration is not present for an hour and a half to two hours. Usually in burned buildings the bodies are found charred, not completely destroyed. The time taken for the destruction of the body of the new-born infant was discussed in connection with infanticide.[7a]

306. **Identity of charred body.**— The identity of a charred body is often very difficult because of the destruction of the surface of the body, and the marked shrinking which takes place in the body, under the action of the fire. The body may shrivel to one half its original size, so that the body of an adult appears no larger than that of a child of ten. Some of the axillary or public hairs may remain to give an estimate that the person was over puberty, and, in case the external genitals are destroyed, the uterus may remain to identify the sex.

307. **Spontaneous combustion.**—"Formerly it was believed that, in certain conditions, the body of a living person could take fire and be consumed, either spontaneously, without accidental cause, or on contact with a burning body, or of a very small quantity of combus-

[7a] See § 135, *ante*.

tible material. That opinion rested on some fifty published cases.[8] It was thought that the body became combustible through prolonged use of alcohol, ending with the impregnation of all the tissues; or else it was admitted that during life gases were developed. Cases were even cited where spontaneous combustion was limited to a very small area of the body: as a thumb, for example.

"That theory was overthrown in 1850 by the experiments and truly scientific work undertaken in connection with a celebrated trial,—that of the Countess of Goerlitz.[9] The experts, among whom were Liebig and Bischoff, demonstrated that the proportion of water which the human body contained (75 to 80 per cent) did not allow of spontaneous combustion nor of burning without combustibles. All the savants joined in the opinion, and to-day, except for a very few doctors, who make special reservations, no one longer believes in spontaneous combustion."[10]

Ogston, however,[11] considers that there is increased combustibility of the body, under special conditions. He divides the cases given in support of the theory of spontaneous combustion into two classes, the cases in the first of which are manifestly false, or where the statements bear absurdity on their face. With them he groups those that may justly be suspected, until fresh and better evidence shall have been collected to prove or disprove them.

308. Spontaneous ignitability.— The cases of the first class, which the author cites, certainly justify him in calling them "worthless data," although they furnish very entertaining reading. An hysterical girl feels a sudden burning in her fingers, and sees a blue flame hovering about them, "visible only in the dark," which cannot be extinguished by water. A blacksmith has a similar experience. A man sees a flash of fire seize on his shirt, which is suddenly reduced to ashes, without his wristbands being touched at all; he cries out, and when help arrives he is found on the floor surrounded by a light flame (of spirit, spilt over his clothes?) which disappears as his friends approach. A man lies down in bed with his clothes on, and burns spontaneously; his "whole trunk" and thighs are said to be badly burnt—yet, "remarkable to state, at the places where his

[8] See Tourda's article on Combustion Humaine Spontanée in Dict. Encycl. des. Sci. Méd.

[9] Tardieu and Rota, Relation Médico-Légale de l'Assassinat de la Comtesse de Goerlitz, Accompagnie de Notes et de Réflexions Pour Servir à la Histoire de la Combustion Spontanée, Ann. d'Hyg. Pub. et de Méd. Lég., 1850, 1ère série, t. XLIV., and 1851, t. XLV., pp. 191 and 363.

[10] Quoted from Vibert, Précis de Méd. Lég. p. 277.

[11] Ogston, Brit. and Foreign Med.-Chirurg. Review, Jan. 1870, p. 179.

clothes were completely burnt, the body was uninjured, and *vice versa.*"

Most of the cases rest upon the authority of the person injured. It is upon this class alone that the doctrine of spontaneous ignitability rests.

309. Increased combustibility.— The second class of cases, too truthful in their narratives to be disbelieved, and attested by so many competent observers, present a character differing much from the fables cited above. In the first class, many of the patients recovered; in the second class, the subjects all died; and not only so, but were all found dead,—their bodies, their clothes, and the articles in their neighborhood, being partially or entirely destroyed by fire, the only remarkable thing about them being that the bodies were burnt and charred out of all proportion to the destruction of the neighboring objects, and to an extent which seems incapable of being accounted for by the heat of the burning clothes and objects in the vicinity. For illustration, several specimens of cases are cited, from which only one is here presented, as follows:—

"On the 14th March, 1869, my father and I were requested to examine the remains of Mrs. Warrack, or Ross, aged sixty-six, who resided alone in a house near the bridge of Dee, Aberdeen. She was said to have been stout, of intemperate habits, and her son stated that he had left her at 10 A. M. on the 14th, in her usual health. She was found at 11 A. M. on the same day, lying burnt on the lower steps of the stair of her house, on her left side. The house was pervaded with a disagreeable smell, but liker that of burning straw than of burning animal matter. The room which she usually inhabited, the door of which was within two yards of the place where she lay, had the same smell; the chair in which she sat stood in the middle of the room, its back almost entirely consumed, and its arms wholly so. The seat of the chair showed mere traces of the action of fire. The bed, about two feet from her chair, had its straw mattress slightly burnt at its fore part. The wood-work of the bed and the curtains were uninjured. Her chair was about four feet from the fireplace, and about two feet from an uninjured mahogany table, on which stood an empty beer-bottle, smelling of whisky. Nothing else in the room was touched by fire. The stairs were of wood, and underneath, and in the immediate vicinity of where she lay, they were charred to the depth of a quarter of an inch. The perpendicular bars of the hand-rails similarly charred beside her for a foot up, the top rail and the

wall, which was a half a foot from the hand-rail, blackened by smoke.

"The condition of the body, however, showed that the fire had caused the greatest alterations in it. The hair was burnt off, the soft parts of the face and front part of the head burnt off, the bones exposed, blackened, and calcined. The back of the head, the neck, and the trunk everywhere converted into greasy charcoal to the depth of about an inch, the skin totally removed, and the bones of the trunk lying bare, blackened, and calcined.

"The front wall of the abdomen totally destroyed and wanting; the intestines burned into a hard and blackened mass; the liver converted into ashes for the depth of an inch, but retaining its shape, its left lobe projecting nine inches from the margins of the ribs.

"The upper limbs distorted; the elbows strongly flexed, and everywhere charred to a great depth, the bones, however, even of the fingers, preserving their position. The right thigh had its deeper muscles still uncharred, but of the appearance of roasted beef, and very dry; the skin and superficial muscles totally burnt away. The right leg only partially attached to the thigh, and entirely converted into a soft, black, greasy, and shapeless cinder, through which the finger could be pushed with ease. The left thigh and leg in a condition similar to that of the right extremity, but still attached to the foot, which was a charred and shrivelled mass similar to the right foot. Not a vestige of clothing remained anywhere."

The theory of spontaneous combustion in the living body is untenable in the present state of our knowledge of the laws of combustion. It does not follow, however, that we should reject as unworthy of belief the many curious cases on record.

The following conclusions may be accepted:

1st. That the bodies of habitual drunkards, particularly if corpulent, are more than ordinarily inflammable, so that slight accidents, such as the upsetting of a lamp, or a spark from a pipe, may lead to the ignition and destruction of the body.

2d. That in these cases the extent and gravity of the burns may be out of proportion to the apparent exciting cause. It has been noted in these cases that the combustion of the body may be almost total, while adjacent objects, such as furniture, may have been only slightly or not at all injured. Also that the flame is usually difficult to extinguish. That women are more frequently the victims than men. The deposit of a peculiarly fetid soot upon the surrounding objects has been observed in most instances of this form of combustion.

CHAPTER III.

HEAT AND SUNSTROKE.

310. Degree of heat consistent with life.—The degree of heat through which man can live depends a great deal upon the conditions to which he is exposed. Puddlers in iron foundries live at a temperature of 136° Fahrenheit, for eight to ten hours a day. Engineers and stokers live at a temperature of 150° F. In Turkish baths the temperature of the dry rooms is frequently raised to the boiling point of water, and the bathers remain in the rooms without having their own temperature raised above normal; and instances of "human salamanders" are recorded, where men have sustained remarkable temperatures for short periods of time. Martinez,[1] the French salamander, remained in an oven in the Gardens of Tivoli for fourteen minutes, at a temperature of 338° F., and repeatedly stayed in the oven when the temperature was above 250.° Chanouni,[2] the Russian salamander, used to enter an oven with a leg of raw mutton, not coming out until the meat was well baked. And these temperatures seem to have been borne without detriment.

On the other hand, exposure to very much lower temperatures of the sun's heat frequently cause fatal results. Such effects usually occur in those who are engaged in some laborious outdoor occupation, but the same effects may be found after exposure to artificial heat. Swift,[3] in his "Observations on Exhaustion from the Effects of Heat," states that eleven patients were admitted to his hospital from the laundry of one of the principal hotels of New York, and several were brought from a sugar refinery, where, after working several hours in a close and overheated apartment, they fell down insensible. Upon a comparison of the symptoms and lesions of these patients

[1] Brierre de Boismont, Du Suicide et de la Folie Suicide, Paris, 1865, p. 276.
[2] Lancet, London, 1827–28, p. 585.
[3] Swift, N. Y. Jour. of Med., July, 1854.

and those who had become exhausted by laboring in the sun, no distinction could be found.

311. Heat exhaustion.— The cases of sunstroke may be divided according to their symptoms into two classes: heat exhaustion and true sunstroke. In the first set of cases, where the symptoms appear after prolonged exposure, when combined with physical exertion there is liable to be extreme prostration, collapse, and restlessness. The temperature is often subnormal,—as low as 95° or 96° Fahrenheit. The condition may come on at night or when working in close, confined rooms.

312. Sunstroke.— The true sunstroke cases are found in persons who, while working hard, are exposed to the intense heat of the sun. It occurs frequently in soldiers on the march and to laborers in the larger cities. The patient may be stricken down and die within an hour, with symptoms of heart failure, dyspnea, and coma. Death may be almost instantaneous, the victims falling as if struck on the head. The more usual form comes on with headache, dizziness, nausea, and vomiting, followed by insensibility and coma, pulse rapid and full, temperature ranging from 107° to 110° or higher. The fatal termination may occur within twenty-four or forty-eight hours. Recovery may be complete, but often there remains a permanent inability to bear high temperatures. Such persons may become very uneasy when the thermometer reaches 80° F. in the shade. Loss of mental concentration and failure of memory are also very constant sequelæ.

313. Post-mortem appearances.—The post-mortem appearances are not characteristic. In some cases there is a congestion of the brain; but in four cases of heat exhaustion examined by Pepper "the brain exhibited no indications of congestion, and nothing, in fact, of an unusual appearance." Dr. Pepper was, however, struck with the appearance of the heart. In all four subjects it was pallid, flaccid, and softened, while the other muscles of the body were florid and firm. The lining membrane of the heart and of the large blood vessels was of a very dark, almost purple color. The cavities of the heart contained but little blood, and no coagulum. The examinations were made from six to eight hours after death.

Dr. Wood found,[4] in all the autopsies made by him, the heart firmly contracted, especially the left ventricle. Some previous observ-

[4] Thermic Fever, or Sunstroke, by H. C. Wood, Jr., M. D., Boylston Prize Essay. Phila., J. B. Lippincott & Co., 1872. And Philadelphia Medical Times, Aug. 5, 1876.

ers (for instance, Levick, Pennsylvania Hospital Reports, 1868, and Pepper, quoted above) had noted the heart as being soft and relaxed, while others did not report the condition of the organ. Dr. Wood accounts for the difference in the fact that in none of his cases was the autopsy made later than two hours after death. In Dr. Levick's cases the post-mortem examinations were made from thirteen to thirty hours after death; and in Prof. Pepper's cases six to eight hours after death; and, besides, all his patients had been bled before he saw them.

"As the temperature of the body remains above 100° for hours, it is evident that putrefactive changes, often already entered upon before demise, must go on very rapidly, and that probably even three or four hours would afford sufficient time for the relaxation of commencing decomposition to follow the heart rigidity. Moreover, direct evidence of the truth of this is not wanting. It has been experimentally demonstrated that in animals rigidity of the heart is found directly after death from excessive heat, but that in a few hours it disappears."[5]

This rigidity of the heart and the marked rigor mortis which comes on at an early period after death from sunstroke is from coagulation of myosin.

The other post-mortem appearances are mostly negative. Congestion of the brain or effusion into ventricles is not of frequent occurrence. The lungs, however, and the right side of the heart are found gorged with dark, fluid blood.

Dr. Wood has not observed any change in the blood microscopically, but the coagulability is always impaired to a greater or less degree.

[5] See Boston Journal of Med., Vol. X., p. 350.

CHAPTER IV.

COLD.

314. Degree of cold consistent with life.—The degree of cold to which a person can be exposed and live varies to a great extent. The Eskimos and the explorers in the polar regions live for long periods of time at temperatures of 40° to 60° F. below zero, without detriment. And, on the other hand, in the retreat of Bou Thaleb, January 2–4, 1845, Dr. Schrimpton reports that General Levasseur lost, from a column of 2,800 soldiers, 229 men by cold, when the temperature was but 2° F. below zero.[1] Infants, old people, weaklings, and those addicted to alcohol regularly are more easily affected than people in robust health.

315. Symptoms.—In persons who have been subjected to intense cold there is a primary contraction of the blood vessels in the skin, and subsequently a congestion of the internal organs. Later, there is probably a paralysis of the cutaneous blood vessels, with a revulsion of the blood to the skin again. Hence, there is at first a paleness of the skin, and later the skin assumes a livid hue. After prolonged exposure the whole body becomes benumbed, the respiration oppressed, and the head heavy. Blood pressure is lowered, the red blood corpuscles are destroyed, and nerve activity is decreased. Perception and sensation are obtunded, the mind wanders, an invincible lethargy steals over the senses, the limbs become paralyzed, and the unfortunate person, overcome with drowsiness and exhaustion, sinks down into apparent death. Unless speedy relief is afforded, this condition soon merges into real death. According to Larray, death is preceded by a general pallor, stupor, difficulty of speech, dimness of

[1] See Ann. d'Hyg. Pub. et de Méd. de Méd. et de Chir. Militaires, 2s., I., Lég., 1881, 3s., VI. Recueil de Memories p. 554.

sight, and sometimes a total loss of these functions. In the retreat from Moscow, some men, he says, led by their comrades, were able to march for a considerable time in this condition. But their limbs soon refused to support them, they reeled like drunken men, and fell, benumbed and lethargic, and soon expired. Almost all the men who perished in this manner were found lying with their faces to the ground.

316. **Post-mortem appearances.**— After death the body is found frozen and the cranial sutures are separated. The skin is reddened; not strikingly so, but distinctly so as compared with the blue of suffocation; the hairs of the skin are on end, and the penis and scrotum retracted. The blood is nearly always lightly clotted but becomes fluid as the body thaws out. It is found in large quantities in the large vessels and the heart, all the chambers of the heart being filled with blood. Wichniewski[2] constantly found ecchymoses in the mucous membranes of the stomach. After the body is thawed out rigor mortis may persist, according to Blosfeld and Bruecke, though it is denied by others. Decomposition sets in early after thawing, with rapid imbibition and transudation of the blood, giving marks of the blood vessels in the skin.[3] Serous effusion into the ventricles of the brain or under the arachnoid was observed by Kellie in two cases, and in three out of six cases by Blosfeld.[4]

317. **Frostbite.**— In cases where death does not occur directly there may be signs of frostbite of the ears, nose, and extremities, or even gangrene of the lungs. Frostbite of the extremities has been classified by Parmenter as of the first, second, and third degrees, corresponding to the degrees of burns,—first degree with reddening of the skin, second degree with vesication, and third degree with destruction of the deeper tissues. The discoloration and signs of the frostbite, however, do not appear for several days after the exposure.

318. **Causes of death from cold.**— Cases of suicide by cold are very rare. One recent Vienna case is reported by Hofmann of a woman who went out in the winter in her bare feet. Before going out she had taken a considerable drink of cognac, and had left a note to those

[2] Wichniewski (Virchow's Jahresberichte, 1895, I., 460) found hemorrhagic spots in the mucous membrane of the stomach of forty out of forty-four cases of persons where death had been due solely to cold. In the other instances of 900 autopsies that he had performed, with death from other causes, the spots were not found. His work has been corroborated by Stoenesco. Rev. de Méd. Lég., 1903, X., 14.

[3] Vibert, Précis de Méd. Lég., 4 ed, 1896, p. 203.

[4] Beck's Med. Jour., Vol. II., p. 68; Henke's Zeitschrift, 1845, p. 245. One hundred legal autopsies made in the institute for instruction in forensic medicine in the Russian university at Kasan.

who should find her. When found her feet were frozen and she was insensible. She died on the way to the hospital. Murder by cold is more common, but can, of course, be done only on the helpless, as in cases of newborn infants. Accidental cases of death by cold are not frequent in the temperate latitudes. The duration of exposure to cold necessary for the production of death is extremely variable. At the Paris morgue, where the temperature is kept at about 0° F. during the day, and 18° F. during the night, the time necessary for freezing the body stiff is about twenty-four hours.[5]

If marks of violence be found upon the body, they must be judged according to the rules already laid down in the chapter on wounds. If necessarily mortal, the influence of cold need not be considered; but in all other cases it is obvious that cold must have greatly accelerated the fatal result. The same remarks are applicable when the subject is very young. It must be remembered, however, that cold itself may here be more readily employed as a homicidal agent, and that possibly the other marks of ill-treatment may be few or none. An atrocious case of murder by cold has been frequently quoted, on account of the rarity of examples of the kind. A man and his wife, at Lyons, were tried for the murder of their daughter, a girl aged eleven, under the following circumstances. On the 28th of December, at a time when there was a severe degree of cold, the female prisoner compelled the deceased to get out of her bed, and place herself in a vessel of ice-cold water. The deceased complained of exhaustion and dimness of sight; the prisoner then threw a pail of iced-water upon her head, soon after which the child expired.[6]

[5] Vibert, Précis de Méd. Lég. [6] Ann. d'Hyg., 1831, p. 207.

CHAPTER V.

ELECTRICITY AND LIGHTNING.

I. Electricity.

319. In general.— The recent introduction of electricity of high voltage into general commercial use has brought with it a number of accidents and fatalities. Electric power, as supplied commonly, is either the direct current, with a voltage of 110 to 550, or the alternating current, with a voltage of 1,100 to 6,000, or even as high as 60,000, for long distance transmission, as from plants like that at Niagara Falls. The alternations commonly vary from 25 to 100 per second. These currents are transformed to the desired potential (usually low) at the destination. Street cars are generally run on a current with a voltage of about 550; motors at voltages varying from 110 to 550, according to the local conditions; houses are supplied with incandescent lights at a voltage of 110, either direct or alternating. Arc lamps are commonly run by direct current, the voltage depending upon the number of lamps in the circuit, sometimes being as high as 5,000 volts. Telephones and telegraphs are operated at a comparatively low voltage, and such a small amperage as practically never to cause an accident.

Injuries from these currents usually come with the high voltages; but the alternating current, even of low voltage, is much more dangerous than the direct current. Exception, however, must be made of

the exceedingly rapid alternating currents of Tesla and d'Arsonval with which currents of from 10,000 to 40,000 volts may be applied to the body without any effect. The alternations of these currents are about 10,000 to 20,000 per second.[1]

320. Conditions determining effect.— Another point, too, must be taken into consideration, and that is the resistance to the current offered by the body. This resistance is dependent upon the efficiency of the contact between the electrical conductor and the body, and the condition of the surface of the body. If the body surface is moistened with perspiration, or by any saline solution, the body receives much more of the current than if the skin is perfectly dry. Again, the resistance of the body depends upon the portion of the body that the current traverses. If the current passes through the entire body it naturally encounters much more resistance than if it traverses merely one hand. Hence, to say how much effect a certain current may have upon the body we must know not merely the character of the current, but also the conditions of the body, and the part of the body that it passes through; and then we can estimate but roughly the effect which the current will have. In a series of experiments on animals to determine the best method of executing criminals, the committee appointed by the state of New York reported[2] results which showed that dogs weighing from 10 to 90 pounds had a resistance varying (not in proportion to their weights) from 3,600 to 30,000 ohms; and in one case of a dog weighing 37½ pounds a resistance of 200,000 ohms. These dogs were killed with alternating currents lasting only an instant, or of but a few seconds' duration, the voltage of the currents being from 800 to 140 volts in the various cases; while in the dogs exposed to the direct current, one with a resistance of only 6,000 remained unhurt after exposure to seven shocks with a voltage of from 1,000 to 1,420 volts, and a seventh exposure of two and one half seconds to a current of 1,200 volts. The dog of 200,000 ohms resistance withstood the direct current of 304 volts for thirty seconds, and the alternating current of 100 volts for sixty-five seconds. The resistance of the human body may be roughly estimated at 10,000 ohms; but this is subject to great variations, and with these variations the dangers from electric currents vary. It may be reduced, as in electrocutions, to 200 or 300 ohms.

[1] See Biraud's thesis, Lyons, 1892, La Mort et les Accidents Causés par les Courants Electriques de Haute Tension.

[2] See The Medico-Legal Journal, New York, 1889, p. 200. Compare also Journ. Amer. Med. Assoc., 1895, Vol. XXV., p. 283.

321. Accidents.— Accidents from electricity most often occur, naturally, among those working with electrical machinery and wires, and the injuries received are of great range, from slight burns to marked nervous effects or instantaneous death. The following are instances of recovery from injuries due to high voltage currents that are ordinarily considered mortal. Donnellan[3] reports the case of a man, forty years of age, who grasped the ends of a wire carrying 1,000 volts. He was rendered immediately unconscious and remained in profound coma for a half hour, until seen by the physician, when his face was pale and bathed in perspiration. Forty minutes after the contact he vomited and then became wildly delirious, so that it took the efforts of three men to hold him in bed. He moaned and cried incoherently and had severe convulsions, rapidly repeated, in spite of morphin. After a couple of hours of convulsions he fell into a sleep from which he awoke four hours later, dazed and sore all over. The next day he had recovered except for the burns on his arms and legs along the lines where the wires had been in contact with the clothing, but the clothing showed no signs of scorching.

Mr. Smurthwaite gives an account[4] of a man admitted to the infirmary in a semiconscious condition, suffering from severe burns of the hands and thigh. The man, who had a large bunch of keys in his pocket, was leaning with his right thigh against an unprotected brass fitting, adjusting the brushes on a motor with his right hand when he felt the shock. A fellow workman heard him shout, and running to him, found him fixed to the machine in a condition of tetanic spasm, his back bent in the position of opisthotonos. On being knocked off the machine by his fellow workmen, he lay on the ground as if stunned, for about ten minutes, when he slightly moved his eyelids, but could not speak. There was a large hole burnt in his trousers over the pocket in which the keys were. The keys themselves had the appearance as if they had just been taken out of a hot furnace. There was a burn on his thigh of a peculiar shape; about the center of the wound there were a number of depressions which evidently corresponded to the heads of the keys, and for about two inches round this burn the skin was very much swollen and of a dusky red color. The right hand was burned very severely. On the second day the first phalanx of the thumb and the first finger had to be amputated. The circuit which caused the injury was of 2,150 volts.

[3] Donnellan, Medical News, Philadelphia, 1894.

[4] Smurthwaite, Brit. Med. Journ., 1901, Vol. I., p. 573.

Hedley reports[5] the case of an electrical engineer, who accidentally put himself in circuit with a 3,000 volt circuit while he was standing on a chair. He said that the first thing he realized was that he was standing on the floor. He had no clear idea whether he jumped off or was knocked off. His forearm was drawn up to his chest, and the hand clenched. All power of movement below the elbow was absolutely lost, but the arm at the shoulder could be moved. He felt pulsations in time with the alternations of the current (83 periods per second) from a little above the elbow down, which gradually became less violent and the motor power in the forearm gradually returned. In three minutes he felt "none the worse." But ten minutes later there was a sensation of burning on the fingers, where examination showed that there was a burn. There was no other effect except that the man expressed himself as feeling decidedly better in general health. An estimation of the voltage to which the man's body was subjected was conservatively placed at 2,500 volts, his body resistance at 10,000 ohms, and the current at 0.25 amperes.

The following case is significant from the fatal result following an ordinary 100-volt alternating lighting current.[6] A carpenter kneeling on a gas pipe while doing some repairing in an attic, accidentally touched the back of his head against a denuded wire running to a droplight. The day was hot and the man perspired freely. His clothes were saturated with sweat. The man gave a slight outcry, a convulsion, and stretched out in opisthotonos. A companion removed him fifteen to thirty seconds later, and in so doing got a shock from handling the wire. The man gasped a few times only, and then was dead. The only injury was a slight burn 3/16 of an inch wide and 2½ inches long, over the occiput, scarcely going through the cuticle. The city electrician said that the charge was that of an ordinary lighting current for individual or chandelier lights,—100 volts, from a 50 cycle, 6,000 alternation system.

322. **Suicide.**— In this connection may be mentioned a singular case of suicide of a man who deliberately took hold of the conductors of a dynamo electrical machine at the works of M. Chertemps, in Paris, and was instantly killed.

323. **Electrocution.**— Electrocution was adopted as the legal mode of executing criminals in New York state in 1888, in Ohio in 1896, and in Massachusetts recently, as being more humane than hanging

[5] Hedley, Lancet, London, Dec. 5, 1896, p. 1,630.

[6] Van Zwaluwenburg, Journ. Amer. Med. Asso., Oct., 1903, Vol. XLI., p. 967.

or any other known procedure, producing instantaneous death. The current used is one of 1,700 to 2,000 volts, with 16,000 alternations per minute, and estimated to send 7½ to 8 amperes of current through the body. While death is considered to be coincident with the passage of the current the first time that the switch is turned, yet three applications of about three seconds each are given, and the victim is usually pronounced dead within thirty seconds after the current is first switched on.[7]

324. Post-mortem lesions.—In injuries done by electricity there are no lesions characteristic of the cause. The only signs are the local burns at the point of contact with the wires, which have the shape of the conductor that came in contact with the body.[8] In the majority of instances, however, the circumstantial evidence will be such as to leave no doubt as to the cause of the injury. In the fatal cases, similarly, there is nothing to point to the cause of death except the slight skin lesion. And possibly in some cases there may be signs of asphyxia, as the death is said to be due to paralysis of respiration. McDonald,[9] in a number of cases executed by electricity at Sing Sing, reported multiple punctate hemorrhages in the medulla, but they do not seem to be characteristic enough to be the basis of a decision in a case of doubtful cause of death. Rigor mortis appears early, is marked and continues long, and decomposition takes place early.

II. Lightning.

325. In general.—Injuries by lightning are similar to those from electricity generated for mechanical uses. These accidents occur most frequently during the summer or hot months, and more often during thunder storms and rain storms, though they may take place without wind or rain, and with an almost cloudless sky. An instance of a lightning casualty without any other great meteorological change is cited by Le Conte:[10] Sunday, the 2d of July, 1843, about three o'clock P. M., five negroes were simultaneously prostrated by a single stroke of lightning, on a plantation in Georgia. "The sun was shining brilliantly at

[7] Bennett, Amer. X-ray Journal, June, 1900.

[8] See Marmaduke Shields' and Sheridan Delephine's article on the post-mortem appearances in a case of death from the action of electricity. Brit. Med. Journ., March 14, 1885.

[9] See article by McDonald and Van Gieson, New York Med. Journ., May 7th and May 14th, 1892.

[10] Le Conte, New York Journ. of Med., Vol. III., p. 295.

the time, and a greater portion of the visible hemisphere presented the usual serenity of the summer sky. A singular and rather angry-looking cloud had for a short time previously been observed near the verge of the southeastern horizon, from which occasionally proceeded the low rumblings of very distant thunder; but nothing in the appearance of the heavens betokened the immediate proximity of a thunder-storm, or prepared them for the terrible electrical explosion which followed. Not a drop of rain had yet fallen, and the earth was quite dry. Such was the condition of things when suddenly the whole atmosphere in the neighborhood was momentarily illuminated by what appeared to be a universal flash, which was accompanied, or rather succeeded, by a single astounding report. No dust was observed to rise from the ground, nor any other evidence of mechanical violence. No other thunder was heard after this explosion; the cloud quickly dispersed, precipitating only a little rain a few minutes after the accident; and in the course of an hour the atmosphere resumed its tranquillity. The five negroes were taken up in a state of insensibility amounting to apparent death." Three of them had been instantaneously killed. In two no marks of injury were discovered; in the third there was a burnt spot about the size of a dollar under the right axilla. The other two recovered. One of these was a woman, aged seventy years, and the singular fact is stated that in her the catamenial discharge which had, in the ordinary course of nature, ceased for more than twenty years, was completely, and thus far (about a year afterwards) permanently, re-established.

326. Effects.— The effects of lightning,[11] like those of electricity, may be either a slight burn or severe nervous disturbances or death. Sestier collected 601 instances of people struck by lightning of whom only 250 were killed. Those who recover from a lightning stroke rarely recognize the source of their injury. They usually become immediately unconscious and remain so for a few minutes or even for several days. Deafness is a very frequent sequence and blindness or impairment of vision is not uncommon. Paralyses, especially of the legs, are fairly frequent, as are interference with the functions of the internal organs, difficulty in urination, and in defecation; so are disturbances of memory and reason. These functional disturbances, however, are usually only temporary, lasting from a few hours to a few months, as a rule.

[11] See Oesterlen's article on "Lightning" in Maschka's Handbuch der Ger. Med., Vol. I., p. 795.

327. External lesions.— External injuries are not severe in about half of the cases. They usually take the form of burns, from a slight reddening to carbonization of the tissues in the severe cases. In a certain number there are distinct, branched, spark tracings, popularly interpreted as "photographs of trees." Deeper injuries also occur at the points where the spark enters or leaves the body, looking more or less like gunshot wounds. Exceptionally there may be fractures of the skull or tearing off of extremities. The clothing may be torn into shreds or ripped off of the body. Oesterlen described the effects of lightning upon man in two classes, depending on whether the man is standing in the open or under shelter. If a man, for instance, is leaning against a tree, the lightning will go from the tree to the man's shoulders (or whatever part of the man is leaning against the tree), and there show deep burns or wounds. Then, by a narrower band, go down the back, gradually becoming narrower and more superficial down to the point where the clothes are fastened closest to the body; the electricity is better conducted by the clothing, which may be torn or pierced, and then the lightning passes back again to the skin, where the new point of contact is again shown by deep burning of the tissues, and then on to the shoes and the ground. If the person is standing in the open, he is usually struck on the head, the hat pierced or burned, and the hair singed. The skull may be pierced and the blood-vessels of the head destroyed; but more often the electricity passes by the skin, striking on the sternum with a deep burn there, and a narrow burnt strip from the sternum to the pelvic region. In the lower part of the body it goes more often by the clothes causing a perforation of the dorsum of the foot, and frequently a destruction of the shoe. Of the persons struck who had been in the open fields, three out of four died; of those under trees, one in two died; and of those in houses when they were struck, one in five died.

328. Post-mortem findings.— The post-mortem findings in persons struck by lightning are practically limited to the condition of the skin for proof of the cause of death. Of 119 persons killed, nineteen had no external lesions, and twenty-six only very slight evidence of the lightning, such as redness of the skin, excoriations, small perforations of the tissue or singeing of the hair. As a rule, decomposition sets in early and continues rapidly, the body being distinctly distended two or three hours after death, discolored, and with a distinct odor. Rigor mortis sets in early. The internal findings are of very little value, the most significant being the changes in the blood,

which is dark-colored and fluid, though it may coagulate in small clots after its removal from the body. Congestion of the vascular organs is fairly common, and sometimes there are ecchymoses in the peritoneum. Rupture of various organs is sometimes found.

329. Cases.— The following instances may be taken of the effects produced by lightning. A man[12] was driving a water cart along an open road, and sitting on the tank, when he was struck by lightning. Both the driver and the horse were killed at the same time. There was found a burnt spot on the back of the man's head, about an inch and a half in diameter, where the hair had been burned off. The rest of the hair had been singed. Down his spine was a black line three fingers in breadth, extending to the buttocks, where the skin was torn off for some distance. There were no other marks on the body. The horse's nose bag was on the tank where the driver had been sitting on it, and had a hole burned through it. Between the tank and the front of the cart were two zinc pails which had been fused, showing the path that the lightning followed through the cart till it struck the horse.

In another instance[13] a farm laborer took refuge from a thunderstorm under a tree while three of his companions took shelter in a neighboring shed. The occupants of the shed were scared but not hurt, and after the storm was over they went to look for their companion. The tree under which they had left him was denuded of its bark, and their companion's boots were standing at its foot. The man himself was lying on his back a couple of yards away and though he had been fully clothed when last seen, he was now naked except for the left arm of his flannel vest. He was conscious. His body showed marks of burning, and his leg was broken. The field around was strewn with fragments of his clothing. His watch had a hole burnt in the case and the chain was almost entirely destroyed. The man stated that he was struck violently on the chest and shoulders, became enveloped in blinding light, and hurled in the air, coming down on his back "all of a crash," but never losing consciousness. He was deaf. His face was burned and his body was covered with marks of burning, deeper on the abdomen and right thigh than on the chest. Down each thigh and leg was a broad, indurated band of burning which passed along the inner side of the knee, to end below at the inner side of the left ankle and at the right heel, respectively.

[12] Lancet, London, July 25th, 1896.
[13] Lancet, London, 1879, Vol. II., p. 655.

On the left foot was a lacerated wound with a comminuted fracture of the os calcis. The man made a good recovery.

Boudin has collected[14] a number of cases in which death left the victim rigid in the position in which he was at the time of death.

According to Carden, quoted by Rivière, eight reapers, taking their food under an oak, were struck by lightning, and died, preserving their attitude,—one of a man eating, another drinking. In Lorraine a woman and one of her children were killed, and remained in a sitting posture. At Dover a man killed with four horses was found sitting under a bush. A man of law at Troyes was struck dead by lightning when on horseback. On January 22, 1849, a goat was killed near Clermont, and was found sitting on his haunches, with a bunch of green leaves in his mouth. A woman was struck while plucking a flower, and her body was found standing nearly erect, with the flower in her hand. A priest was killed while on horseback; the animal reached home, a distance of two leagues, his dead master still sitting erect in the saddle.

[14] Boudin, Ann. d'Hygiène, 1852, Hist. Méd. de la Foudre et de ses Effets sur l'Homme.

CHAPTER VI.

STARVATION.

330. Starvation by accident or intent.— Starvation assumes a legal importance when it enters into the consideration of cases of maltreatment and neglect, or occurs as a cause of death. A person may starve himself to death, he may perish from the want of proper food, from being unable to procure it, to swallow it, to digest it, or to assimilate it; or he may be purposely deprived of it. Medical evidence can only attempt to establish the fact that a death has been caused by starvation, and can, in many instances, indicate the physical causes of the starvation; but can not, of course, determine whether the starvation was voluntary or enforced. In the case of young children, however, homicidal intentions may be inferred, while on the contrary, in adults starvation is more often suicidal. Possibly associated marks of violence used in restraint, or marks where the person has tried to obtain blood from his own body in lieu of food, could be interpreted as evidence against suicidal intention.

331. Modes of starvation.— The mode of starvation is not always the same. It may be acute, where all nutrition and fluids are suddenly cut off, as in the accidental cases where the person is shipwrecked, shut up in a mine by a landslide, etc., or it may be gradual, where the supply of food is slowly diminished, as in times of famine. In other cases, though no solid food is swallowed, life is prolonged by the use of a little water, or even by a very meager allowance of food. In other cases, again, after a period of total abstinence, the imperative demands of nature are gratified perhaps too freely and too late to save life. In infants we may have peculiar deformities of the

alimentary tract which prevent the swallowing or absorption of food, as in the cases of closed œsophagus or intestine.

332. Period.— The period which a person can go without food depends upon the mode of starvation. The adult in robust health can always live longer than the infant or the aged. Falck[1] estimates the duration of life of an adult with total abstinence from food and drink as from seven to twenty-one days; but if water be accessible death may not come for two months. Caussé[2] recites the instance of a girl who was buried for eleven days by the caving in of the house where she was. At the end of that time she was dug out alive. Glaister[3] cites a case of a shipwrecked crew, absolutely without food or fresh water in their small boat. One lived eleven days, one twelve, two fifteen, one eighteen, and the captain twenty-eight days; but he had tied his cravat around the mast, and sucked rain water from it. In the Medical Gazette[4] there is a case of a miner who was entombed, and at first was able to obtain some dirty ditch water; but after the first ten days he was too weak to fetch the water. He was removed alive on the twenty-third day, but died three days later.

Wonderful examples of professed prolonged abstinence may be found in abundance in the older works, and are not wanting in our own day. But the numerous cases in which trickery has been detected should make us wholly incredulous of their genuineness. Instances of abstinence for months, and even years, are gravely related; but it is probable that there is no well-authenticated case of entire abstinence from food and drink for more than thirty days, while, on the other hand, it is highly probable that, in the majority of cases, death takes place within a week or ten days. Dr. Gadermann reports a case,[5] however, in which, for twenty-three days, all liquid or solid nourishment was refused, the person being bent upon self-destruction. At the end of this time he ate and drank greedily, which did not, however, avail him; he died shortly afterwards. The body was almost a skeleton. In this case, the author says, there could not be the slightest suspicion of deception. Professor McNaughten has published a case[6] where a man lived fifty-four days on water

[1] Falck, in Maschka's Handbuch der ger. Med. I., p. 721. For infants, see § 137c, *ante*.

[2] Caussé, Annal. d'Hyg. Pub., 1876, No. 92, p. 328.

[3] Glaister, Medical Jurisprudence, Toxicology, and Public Health, 1902, p. 172; quoted from Times, Feb. 6 and 7, 1866.

[4] Medical Gazette, Vol. XVII., pp. 264-389, 1835.

[5] Henke's Zeitschrift, 1848, 3 H.

[6] Am. Journ. Med. Sci., Vol. VI., p. 543.

alone. In another case, of a prisoner at Toulouse, who resorted to starvation to avoid punishment, life was prolonged to the fifty-eighth day. He drank water occasionally. Valentin refers[7] to the case of a woman who lived seventy-eight days on water and lemon-juice. In another case a man lived sixty days on a little water and syrup of orgeat.[8]

Two very interesting cases of prolonged abstinence in persons afflicted with slight mental derangement, or melancholy, are related by Dr. Taylor, of Ohio.[9] In one, after two periods of fasting, of ten and fourteen days respectively, during the last of which he took neither food nor water, this gentleman, on the fifteenth day, took a little water, and then at intervals a small quantity of milk in it. He died about one hundred days afterwards, having lived in "an almost constant state of abstinence." In the other, a little water was taken on the twelfth day after complete abstinence from food and drink, and a gill every twenty-four hours afterwards for thirty-nine successive days till he died. For the last seventy-two days prior to his death he had no fecal evacuation, but passed urine in small quantities every three or four days. Infants with atresia of the œsophagus usually live three to five days,[10] though Theremin cites[11] one instance where the infant lived for twelve days. The marked difference betwen duration of life where water is to be had is well illustrated by an experiment by Laborde[12] on dogs. He deprived two dogs of all food, but one of them he allowed to obtain water. The dog that got neither food nor water died on the twentieth day; but the one that was allowed water lived forty days without any danger to its health.

333. Symptoms.— The symptoms of starvation show themselves first in the hunger and thirst, which last only two or three days after the food supply is cut off, after which there develops a sense of pressure in the stomach, with nausea. There is a progressive loss of weight, showing itself more in the early days than towards the end. It is apparent in the sunken eyes, depressed cheeks, pointed nose, and in the prominence of the bones all over the body. The abdomen becomes sunken so that it may seem to contain nothing between skin and spinal column. The skin becomes dry, wrinkled, and covered

[7] Lehrb. der Physiol., Vol. I., p. 218.
[8] Archiv. Gén., Vol. XXVII., p. 180.
[9] Am. Journ. Med. Sci., Jan. 1851. In the same place will be found references to some instances of remarkable abstinence, given by the editor, Dr. Hays.
[10] See Maier, Klebs' Patholog. Anat. p. 165.
[11] Theremin, Deutsche Zeitschr. f. Chir., 1877, VIII., 34.
[12] Laborde, Wiener Med. Presse, 1887, p. 183.

with a dirty-brownish, desquamating material. There is a foul odor given off by the skin and also from the breath. The tongue partakes of the characteristics of the skin, becoming dry, covered with a dirty-brown coat, and sometimes cracked. The bowels move very scantily, if at all, and only at very long intervals. The movements then are small, hard, and dry. The urine becomes scanty, but darker in color and of higher specific gravity. The urea and uric acid decrease with the quantity of urine, the chlorids disappear, and the sodium is greatly reduced. The phosphates continue little diminished, and the potassium is increased. Acetone and acetic acid are enormously increased. Thus, from the urine we see the destruction of the tissues of the body.[13]

The body temperature becomes subnormal, the pulse more rapid towards the end. The intellect is usually clear to the end, though there are often headache, dizziness, and in some cases, delirium and convulsions before death. The period of delirium is at times preceded or replaced by a state of somnolence.

334. Post-mortem findings.— The post-mortem findings show the emaciation developed during life more marked in the cases of long duration (that is, where water has been allowed, protracting the period of starvation) than in the cases of death in a short period of time from complete deprivation of food and nourishment. In fact, in the cases of what may be called acute starvation, a considerable quantity of fat may still remain in the body. In a case described by Haller,[14] in a man dying of starvation, there was found in the omentum an inch of fat. The skin is usually wrinkled, and of a dirty-brown color. Rigidity comes on early, as does decomposition. The viscera are anemic and small, the intestines empty, contracted, and very thin walled. The stomach is contracted down to the usual size of the large intestine. The gall bladder is distended with thickened bile. The thymus is reduced to sparse remnants. The loss in weight varies in the different tissues. Falck estimates[15] that there is a loss of 97 per cent of the fatty tissues, and that of the other tissues the spleen loses 67 per cent of its weight, the liver 54 per cent, the testicles 40 per cent, the muscles 30 per cent, the blood 27 per cent, the kidneys 26 per cent, and the brain and spinal cord only 3 per cent, and the heart 2 per cent. The proportion of the total body weight that can be lost and still not interfere with the life of the

[13] Hofmann, Ger. Med., 1902.
[14] Haller, cited in Fodéré's Traité de Méd. Lég., III.
[15] Falck, in Maschka's Handbuch der ger. Med.

person has been estimated at from 25 to 40 per cent. A great deal depends upon the condition of the body before starvation begins.

The following is an interesting example of the deception practised in connection with many of the cases of professed long fasts:[16]

In 1869, a girl, twelve years of age, in Carmarthenshire, Wales, excited a vast amount of interest from the statement that she had lived for two years without eating or drinking, except a drop of water which was placed on her lips every few days. It was also asserted that nothing was evacuated from her bowels, but that every nine days she passed a drachm or two of urine. She occasionally had "swooning fits." The parents positively denied that any food was given her, and many persons believed their account of the case. The girl was confined to bed, but looked fat and rosy.

At the request of her father, who expressed a strong desire that the case should be investigated, a committee, consisting of the vicar of the parish, a surgeon, and several gentlemen and respectable farmers, met and determined to have the girl closely watched. For this purpose four nurses were sent from Guy's Hospital, London, one of whom was to be in constant attendance on the case. The watching began on Dec. 9th, and ended with the girl's death on Dec. 17th, 1869. On December 11th, she is reported as not looking as well as usual, but up to the 14th she is stated to have been cheerful and amused herself with reading. On December 12th stains of excrement were observed on her dress. On the 13th she passed a large quantity of urine, and on the 14th and 15th smaller amounts were voided. For three days before death her extremities were cold, and during the last two days she was very restless. She asked for no food and made no confession of imposition. There was no attempt made to force her to take food, but it was offered to her on the day of her death. "She made no reply, but appeared to go off in a fit." On the same day her father refused to allow the surgeon in attendance to give her food, but afterwards, "when it was too late," he consented.

The post-mortem examination was made by Mr. J. Phillips and Mr. Thomas, and the following appearances, due to the acute starvation, were noted:[17]

"*Exterior.*—Hair nearly black, long, and plentiful; eyes very sunken, pupils dilated; very handsome features; left cheek still

[16] Lancet, London, 1869.
[17] Medical Times and Gazette, Jan. 8, 1870, p. 45.

florid; chest and body generally well developed; mammæ slightly so; armpits and pubes showing precocious puberty; right shoulder more developed than left; left axilla more than usually hollow, as if a bottle or hard substance had been kept there; thighs well rounded, but the legs below the knee small in proportion—less developed than the thighs; soles of the feet soft, bearing no evidence of being used for locomotion. . . .

"*Head.*—On removing calvarium, found the vessels on the surface of brain turgid, the membranes quite healthy, brain beautifully developed, the anterior lobes especially, cerebellum of ordinary size (on cutting into the substance it was found firm, having a large portion of cineritious matter, a few red spots only visible on the cut surface); ventricles empty, base quite normal, containing no fluid.

"*Chest.*—Lungs collapsed, free, rather small, but quite healthy in color and touch. Heart in every respect natural; pericardium containing no fluid or adhesions.

"*Abdomen.*—The whole alimentary canal free from any thickening or contraction, and perfectly healthy throughout. Stomach of ordinary size, containing no food, but about half an ounce of a thickened acid mucous exudation; duodenum containing a little of the same fluid tinged with bile; jejunum also a little of the same fluid, as well as the ileum, where it became slightly grumous. Five half-grown lumbrici, and one full-grown, were in the ileum. In the cecum the fluid became thicker but same in character. Colon fairly distended with gas, and, with the rectum, contained about eight ounces of hardened feces—not in one spot, but diffused through its entire length. Anus pervious, having a little thickened mucus therein; bladder empty; uterus small, but quite healthy; spleen normal, also kidneys and liver; gall-bladder distended with healthy bile; omentum contained a little fat. The body measured fifty-three inches in length; and under the integument was a thick layer of fat; from half an inch on the thorax to one inch on the lower portion of the abdomen."

It may be mentioned that the parents of the deceased girl were tried for having caused her death. The father was sentenced to imprisonment for twelve months, and the mother for six months, it being represented that she acted under the orders of her husband.

335. Diagnosis of starvation.— In estimating the value of the post-mortem appearances, as evidence of death from starvation, it should be remembered that, unless there is absence of disease sufficient to have induced the emaciation and anemic condition described, death

cannot be attributed to starvation as its cause. There are many diseases which would produce a similar condition of the body—some by mechanical obstruction to the ingestion of food, some by interference with the digestion and absorption of the food, others by their direct influence upon the metabolism of the tissues. Hence, the medical witness should be extremely cautious in attributing the death of the individual to starvation, especially in the presence of any other possible cause of emaciation.

CHAPTER VII.

SUFFOCATION.

336. Definition.— Suffocation is the general term used to signify the impeding of respiration; but all methods of impeding respiration are not included. The exclusion of air by submersion in a liquid is considered as drowning; the compression of the trachea by pressure on the outside of the neck is strangulation, or throttling, or hanging,—depending on the method by which the compression is produced. There remain, however, for suffocation the cases where insufficient or inappropriate air is breathed, where the respiratory openings are closed, where the respiratory passages are closed from within, where the respiratory movements of the lungs or chest are limited, either by pressure on the chest walls or by pressure on the lungs from inside of the thorax, as in the cases of pleurisy with effusion or pneumothorax. Where there is interference with respiration from obstruction of the broncioles as in disease, interference with the nervous control of the muscles of respiration, as in certain drug poisonings, or where there is a vaso-motor cramp, as in epilepsy. There may be the same symptoms, and similar post-mortem findings, but the cases are not considered as simple suffocation.

337. Modes.— Suffocation by an insufficient allowance of air is seen where the person is shut up in a limited space, as in a trunk or drawer, or where he is buried alive; by closure of the respiratory openings when the hand or a cloth or a pillow is held over the mouth and nostrils; closure of the respiratory passages from within in the cases where some foreign substance is crowded into the pharnyx or larynx, blocking the entrance of air; by interference with the respir-

atory movements, as in compression in a crowd, or in cases of infants who, during sleep, are lain upon by a bedcompanion.

338. Symptoms.—The symptoms of suffocation appear first in the modifications of breathing. In a few seconds after the air supply is cut off respiratory movements become rapid and forcible and of a marked inspiratory character. At the beginning of the second minute there is a loss of consciousness, convulsions, and the respiratory movements become expiratory in character. In the middle of the second minute there is an expiratory spasm, lasting about a second, which is followed by a deep inspiratory movement. Then comes the stage of terminal respirations,—of short, deep, snappy respiratory movements with open mouth, which come at increasing intervals and with decreasing force until they cease.[1] The convulsions of the second stage are very constant, and not rarely at their height cause opisthotonos. Their intensity and duration depend on the strength and age of the person. They may be absent in the weakened, in those dying in their own expirations, as where the quantity of air is limited, in persons whose nervous systems are dulled, as in the intoxicated, or in the cases of gradual suffocation. During the convulsive stage the action of the heart is slowed and the blood pressure increased. It is then that the characteristic ecchymoses under the skin and serous membranes are formed. Later the action of the heart becomes more rapid, finally growing slower and weaker, and ceases after the respirations have stopped. To estimate the time between the cutting off of the supply of air and death, Vibert[2] performed some experiments upon dogs, hermetically sealing the trachea. From the time that the trachea was sealed till the cessation of respiration was on the average four minutes and five seconds. The limits of this period were three minutes and a half to four minutes and a half. The time from the cutting off of the supply of air till the cessation of the heart-beat was, on the average, seven minutes and eleven seconds. The limits of this period were from six minutes forty seconds to seven minutes and forty-five seconds.

339. Post-mortem signs.—The post-mortem signs of suffocation seem to be more marked the more rapid and complete the asphyxia, and the greater the resistance and struggles of the person. The external appearances in the characteristic cases are the lividity of the face, lips, and finger nails; the prominence of the eyes; the suffusion of the conjunctivæ, the protrusion of the tongue, and the dark, bloody

[1] Hofmann, Ger. Med., 1902, p. 513. [2] Vibert, Précis de Méd. Lég., p. 125.

froth at the mouth. Minute ecchymoses on the neck and chest are common. In many of the cases, however, the only signs externally are the blueness of the lips and the mucous membrane of the mouth. The body cools slowly and cadaveric changes set in early.

The internal appearance which is the most constant and valuable is the condition of the blood, which shows the dark color, and does not readily clot in the body. All of the organs are congested, but the lungs are especially well filled with blood. The right side of the heart is filled with blood, and the left side empty in the typical cases, but there are many exceptions to this rule. The small, sharply circumscribed ecchymoses beneath the pleura and pericardium—the taches de Tardieu—are most constant in children, and are found in certain cases in adults; but they are significant of asphyxia, rather than of suffocation. They may be found also on the lining membrane of the heart and aorta, and in the mucous membrane of the larynx and trachea, also within and upon the thymus gland. The permanence of these spots renders them valuable signs. Tardieu found them under the pleura of the fetus which had been for ten months in a privy well. They are of value only when associated with other signs indicating the mode of death.

340. Diagnosis.— It will be observed, also, that the other above signs are merely those of asphyxia in general. In hanging, strangulation, and drowning, there are one or more signs characteristic of the agent by which life is extinguished, the presence of which, together with the general signs of this kind of death, is almost, if not quite, conclusive. But in other modes of suffocation, if any trace of the instrumentality by which death was produced is found, it will be most probably due in homicidal cases, to haste on the part of the assassin, and yet cannot afford any addition to the medical evidence. Thus, if a person has been smothered with the bedclothes, or suffocated by a hand held before the mouth, or by compression of the chest, a distinct and satisfactory indication of the fact will seldom be had. For this reason the medical examiner will often be at a loss whether to ascribe the death to natural or to violent causes. The case may be one of apoplexy, of faucial disease, or of pulmonary congestion, or may be due to a variety of accidental causes, not apparent without a careful inspection of the body. This must, therefore, in all cases where it is important to remove doubt, be conducted in the most careful and searching manner. The absence of any characteristic mark to indicate the mode of death gives a latitude to conjecture, and to the proposition of general questions, which, in case of trial, will

seriously embarrass the physician. If no accidental cause, such as a foreign body in the larynx, nor any evidence of disease fatal by the production of asphyxia, be discovered, the physician should still be guarded in his opinion, and leave the explanation of the matter of the death to those whose duty it is to investigate the collateral evidence. This is of greater weight than the medical testimony, for while the physician has merely to declare the probability of the person having died suddenly by suffocation, the collateral evidence must establish the instrumentality by which the act was done. In cases where marks of other violence are found upon the body, or the hands and feet are tied, these facts will, of course, require an interpretation from the medical witness. When a dead body is discovered in sand, earth, ashes, or similar substance, the question whether the person was alive or dead when placed there, must arise. From experiment and observation, M. Tardieu concludes that if the substance has reached the œsophagus or stomach, it must have been during life; and that if the body was buried after death the substance will seldom penetrate beyond the entrance of the mouth and nostrils; some traces of it may occasionally be found in the fauces, and quite exceptionally in the air passages, but in the œsophagus and stomach, never.

341. Cases; accidental suffocation.— The modes in which accidental suffocation may occur are very numerous. In the cases in which persons are buried alive under banks of earth, covered up in the ruins of falling houses, or in any way confined in a narrow space in which the air becomes unfit for the sustenance of life, they die by suffocation. Those cases in which a foreign body becomes impacted in the air-passages are more obscure because the cause of death is not suspected. This accident occurs most frequently from over haste in eating; but instances have been reported in which it occurred during vomiting. One case in which a suspicion of violence might have been entertained, from the fact that the victim was entirely alone at the time of his death, was cleared up by finding the vomited food in the larynx.[3]

A watchmaker, aged fifty years, was found dead upon the floor of his chamber at nine o'clock in the evening. He had not been seen

[3] Henke's Zeitsch., 1853, 4 H. A similar case may be found in the Ed. Med. and Surg. Journ., April, 1844, p. 390, and a more recent one in the Lond. Times and Gaz., April, 1859, p. 419. In a case related in the Lancet (March, 1850, p. 313), a person having died suddenly after eating, previous to which he had been engaged in a scuffle, the man with whom he had been fighting was arrested on the charge of manslaughter. A post-mortem examination disclosed the cause of death to be a piece of meat wedged in the throat. The prisoner was therefore discharged.

since the previous evening. During the day several persons had knocked at his door in vain, and it was at last perceived that a forcible entrance had been made. This circumstance suggested that the man had been assassinated. On examining the body, no trace of violence was discovered, but upon the neck and chest were many spots resembling those of purpura; no similar spots were found in the pleura. The brain and lungs were strongly congested, and the tongue and lips were wounded by the teeth. It was clear that death had occured in an epileptiform attack, and the man was found to have formerly been subject to this disease. Robbers, supposing the occupant of the room absent, had effected an entrance; but, probably alarmed at the sight of the corpse, had fled.

This case suggests the caution with which such cases must be interpreted, since not merely the circumstantial evidence, but also the post-mortem findings, might point to a death from violence.

341a. Suicide.— Suicide by suffocation is less common. Taylor quotes the remarkable case of a woman who placed herself in bed under the bedclothes, and desired her young child to pile several articles of furniture upon her. When found, some hours afterwards, she was dead.

One of the most remarkable cases of suicidal suffocation occurred in Germany. It is related by Dr. Roth, and the following is an abridgment, in the Lond. Med. Gaz., from the original, in Henke's Zeitschrift:—

The deceased was well formed, about the middle height, and about twenty-five years of age. She had been seen to retire to her sleeping-room, at nine o'clock one evening, in her usual state of health and spirits. The apartment was only separated by a partition from the one in which her master and mistress slept, and was over a room occupied by others of the household. At half-past five o'clock in the following morning, the master knocked against the partition to awaken H., but, receiving no answer, supposed she had risen and gone out to her work. On getting up, however, he found all the doors and windows of the house closed, when he went into the servant's room, but did not find her there. On the bed was an axe of a peculiar shape, employed in that part of the country for clipping off branches from the trees, and which used to hang behind the door. The blade of the axe rested against the back of the bed, and the handle on the bed. Beside it lay the best bonnet, which she used to keep in her chest. The bed appeared to have been slept on. After searching the well, lest she had drowned herself, H.'s father was sent for,

from a neighboring village. On his arrival, he suggested that the chest should be opened to learn in what trim his daughter had left the place. Finding the chest locked, and the key missing, a blacksmith was got to force it open, when the body of the servant was discovered in the chest, lying in a prone position, on the left side, with its knees drawn up, the upper extremities flexed, and the missing key grasped in the right hand. The chest was about 4½ feet in length, and of proportionate depth. It locked itself on the fall of the lid, and could not be opened from the inside. The corpse was nearly dressed, and the vest (camisole) was put on with its inner side out. On the following day, the body, which had been removed and laid on a bed, was viewed by the reporter. The cuticle was abraided and reddish-brown at seven or eight points, about the centre and upper part of the forehead. The largest of these abrasions corresponded with the thick part of the axe, and underneath them, the integuments were slightly swollen and bluish. The face and upper part of the chest were mottled with cadaveric lividity, the ears were blue, the eyelids closed, the conjunctivæ injected, and the pupils dilated. There was bloody froth about the lips and nostrils, partly dry, partly fresh, and giving this part of the face a blood-stained appearance. Bloody froth was issuing at the time from the right nostril. The mouth readily opened, showing the tongue in its natural position. The key was still grasped in the right hand. With the exception of the abrasions on the forehead, no traces of injury were detected on the body. The clothes were entire.

From the foregoing circumstances, the reporter was of opinion that the deceased had employed the axe which hung in her room, to kill herself, in the way she had seen others slaughter oxen, and that, failing in the attempt, and, perhaps, ashamed of the injuries on her forehead, she had then shut herself up in her chest and perished by smothering. This conclusion satisfied the law authorities so completely that they decided that there was no necessity for making a post-mortem inspection.

Dr. Wossialo relates the following remarkable case: A young woman about twenty years old, who had given birth to an illegitimate child seven days before, died suddenly. Poisoning was suspected, but this was negatived by the autopsy. The signs of death, however, by suffocation were very distinct. The eyes protruded, the face was swollen, the tongue projected between the lips. The outer surface of the neck was in vain examined for any sign of strangulation; but a large ball of hay, the size of a goose's egg, was found in the throat,

reaching down into the pharynx at the back of the larynx, and just visible when the mouth was widely opened.

There was no doubt that this was the cause of death; the question was whether the case was one of suicide or murder. She had just left the room in which were several persons. The mistress of the house went out to seek her, and saw her standing on the floor of a hay-loft, and noticed that she trembled and breathed with difficulty. When the girl was asked what was the matter, she made no answer. The woman, therefore, called her son, and they got her down through a hole in the floor of the loft, and led her indoors. Several women were present, and they thought she was in a fit; she was blue in the face, trembled in the hands and feet, rolled her eyes, and from time to time opened her mouth as if gasping for breath. After about a quarter of an hour she died.

In spite of the improbability of the thing, there was no doubt that this was a case of suicide. There were no marks of violence, and the people in the house heard no cry. She had also full opportunity of calling attention to the cause of her sufferings when she was first found standing in the loft.[4]

341b. Homicide.— Those who are usually the victims of homicidal suffocation are infants and the aged, or those who are otherwise helpless. So slight a degree of resistance is necessary to defeat the purpose of the assassin that a great disproportion of strength must exist for the attempt to be successful. Nevertheless, those miserable wretches, Burke and his accomplices, reduced murder by suffocation to a system, choosing it as the mode of death most likely to leave no marks of crime behind it. The murderer bore with his whole weight upon the breast of his victim, and with his hands covered forcibly the mouth and nostrils till death came on. The body of one of the victims presented, according to Dr. Christison, so few traces of injury, that without the assistance of proof from other sources, it would have been impossible to have declared that the death was not a natural one. In a case related by Dr. Casper, the body of a rich old lady, who lived in one of the most frequented streets of Berlin, was found one morning, in her bed, her head buried among the pillows, and heaped over with bedclothes. Her hands were tied fast behind her back, and her legs bound together by a band, including also her underclothing. The room being warm the body was rapidly decomposing, the head was

[4] Vrtljschr. f. ger. Med., N. F. I., p. 293: Year-Book of Med. and Surg., 1864. p. 458.

blackish-green, and the epidermis was loose. At the same time the eyes were prominent and injected, and the tongue swollen and protruding. Some marks were found upon the neck, which, being hard and distinct in color from the surrounding skin, were thought to indicate an attempt at strangulation. Everything was in the greatest disorder in the chamber, the drawers and cabinets being rifled of their contents. The opinion of the examiners was that death resulted from asphyxia, produced both by strangulation and suffocation.

The following is an interesting case in this connection:[5]

A case of trial for murder by suffocation lately came before the court of oyer and terminer of the city of New York, Judge William Kent presiding, in which William Leitga, the prisoner, was accused of thus destroying his wife, and afterwards setting fire to her bed, by which the body was considerably burned before the fire was discovered and arrested. It appeared in evidence that they had lived very unhappily together, both being addicted to habits of intemperance, and had been quarreling at 1 or 2 o'clock in the morning on which the fire took place (it being discovered about 6 o'clock). The deceased was found lying on a cot, a little on her right side, with a large pillow over her feet, but not covering the whole head; the arms bent up and lying across the breast under the pillow, which was partly burnt; her limbs were burnt to the knees, and also her right arm; the rest of the body was not much burnt; the countenance was distorted, the eyes open, and the tongue protruded from the mouth nearly an inch. The cot on which she lay was about 4 feet from the stove; there was no appearance of fire between the cot and the stove; but everything showed that the fire had commenced at the foot of the cot, and worked up; an empty lamp lay on the floor about 3 feet from the foot of the cot; bedclothes were lying about the room, and everything indicated that there had been a violent quarrel. As the testimony of Dr. Rogers contains the principal facts in this case, we present it in detail:—

Dr. James L. Rogers testified that he "saw the body about 8 o'clock in the morning of October 29th, 1843; the body was slightly inclined to the right; the arms were up, inclining to the breast, but not on it; the lower part of the right arm and hand were burnt to a crisp; the hair was burnt off the top of her head; the left cheek was burnt on a place about as large as half a dollar; the transparent part of the left eye was scorched; the body was burnt across the stomach

[5] C. A. Lee, N. Y. Journ. Med., July, 1844.

down; below the knee the flesh was burnt almost entirely off—above the knee to the abdomen, it had the appearance of a ham being smoked; there was no burn on any other portion of the body except the left ear; the mouth was not burnt; the tongue protruded; the countenance perfectly calm; no mark was perceptible about the neck or any other place, except a small flesh wound in the right side of the eye. On dissection, the brain was found perfectly natural—stomach also healthy, containing about two spoonfuls of liquid matter; the bowels were perfectly healthy, as were the kidneys, except that they all appeared somewhat congested; the lungs and heart were healthy, but the vessels of the lungs were deluged with dark, venous blood, as was the right side of the heart; the left side of the heart was nearly free of blood."

The district attorney asked what was his opinion of the cause of death.

Witness: "In the absence of all natural causes, of which there were none, I should say she died from stoppage or prevention of air from the lungs; it may be called suffocation; the same appearances would be produced, either by the breath being stopped by something placed over the nose and mouth, or by drowning. I observed no appearance of intoxication; I think I never examined a body where there was a more healthy appearance than that presented. Where there is a dense smoke of carbonic acid gas from the burning of charcoal, the same appearances of the lungs and heart would exist in some measure, but not so fully, as the air in such cases continues partially to have effect. The fact that one eye was burnt, the placid state of the countenance (this was denied by other witnesses who first saw the body, and can hardly be presumed from the protruding of the tongue, etc.), and the position in which she lay, led to the conclusion that she must have died before the fire. The probability is, that, if the person had been alive when the fire reached her, she would have shut her eyes, and one of them would not have been burnt. There was no blister in the eye, as there would have been, had it been burned during life. There was also no red line on the body to where the fire came, which is also a very certain sign of burning before death."

Cross-examined: "In the case of a person who dies of suffocation there is a congestion of the brain; the eyeballs are distended, and there is at all times" (in drunkards dying thus) " a smell of alcohol in the stomach and brain."

Mr. Brady asked the witness whether if a person got intoxicated

and in a position to prevent respiration, the same appearances would not be presented as in the present case.

Witness: "It would depend upon this position. If the head was down and respiration stopped, there might be a paralysis; it is very difficult for persons to suffocate themselves. If paralysis did occur from intoxication, the brain would show it; but there was no appearance of the kind in the present case at all. There was hardly the usual quantity of water in the brain."

Brady: "Could not this woman have got so beastly drunk that she might have got in a position to suffocate?"

Witness: "Such might have been the case, but it would show itself in the brain."

Brady: "Would you say that she did not go to bed drunk that night?"

Witness: "In the absence of all appearance or symptom to that effect, we were induced to believe that there was nothing to justify a supposition of the kind. If a person died of intoxication, the brain would show it, and in persons habituated to intoxication, there would be a morbid appearance about the stomach and lungs, a bloated countenance, and other marks which would distinguish it. Suffocation and apoplexy present different appearances after death; in the first case the lungs cease their functions for want of air, yet the blood passes to the brain and returns, as there is nothing in the neck to prevent it; but in apoplexy or strangulation, as in the case of a cord round the neck, the blood stops and the brain exhibits the effect. In suffocation, the breath may be stopped in a minute or half a minute, so that a person would cease to struggle, and in ten minutes be dead. There was an indentation of a key on the left breast of the deceased, which might have been made by a heavy arm pressing on it."

Dr. Putnam testified to nearly the same effect. He said: "That none of the viscera exhibited any marks of intemperance; that if death had been so caused, the brain, stomach, and countenance would show it; the brain particularly would be congested. In death by strangulation, there would probably be proof of violence perceptible about the neck, and the tongue would ordinarily protrude; it generally produces apoplexy. Suffocation may be produced by stopping the respiratory organs, or by inhaling gases. To distinguish which of these causes, one must know the attending circumstances. A person dying of suffocation by inhaling carbonic acid gas would exhibit some change of countenance. I saw nothing in the body externally or internally that could account for death. Taking everything into

consideration, I conclude the death to have happened from suffocation. A pillow laid over the nose and mouth produces such death in two or three minutes, without external marks. I believe the fire to have been communicated to the body after death."

Cross-examined: "My opinions have been formed from reading; never attended but four post-mortem examinations; never of one who died from suffocation from any cause. Congestion of the brain would certainly be found after death from intoxication; so would also inflammation of the stomach. Post-mortem examination was made at 11 o'clock A. M. Stomach appeared as if she had not eaten for six or eight hours; had she gone to bed drunk at 1 or 2 o'clock the night before, should expect to find evidence of the fact. I should not expect to find a morbid state of the stomach in the case of a person who drank moderately, that is habitually, but not to intoxication; never read of a case of strangulation without marks of external force; whether the tongue protrudes or not depends upon the peculiar way in which the exterior force is applied. Suffocation may happen accidentally, by getting into a position in which it is impossible to breathe; this is the case often with infants; it is not impossible that this might occur in the case of an adult, in a case as helpless as a child, but the probability is against such an occurrence. In the case of a person in a room where there was smoke, or gas, or corrupt air of any kind, a drunken person's death might be much expedited. In cases of death by noxious gases, the tongue is usually more or less protruded, and there is more or less frothy appearance about the mouth. In ordinary suffocation, not by gases, etc., it is rare that the tongue protrudes; in cases of violent suffocation it is not common; difficult to say, on a post-mortem examination, whether the person died from violent or accidental suffocation."

Physicians, as usual, were called on behalf of the prisoner, and some conflicting if not opposing opinions were advanced.

Dr. Archer (coroner): "Thought that the burns had been inflicted after death; saw the stomach, thought it did not look entirely healthy, as there was a turgid appearance of the vessels, showing that it had been a good deal stimulated. There was no pink margin around the burns; never found an exception of death from burning that there was absence of the pink margin; did not consider it a sign of suffocation that the tongue protruded; thought the eye was burnt after death. In death from carbonic acid the countenance is generally placid, and it is not common for the tongue to be protruded; the brain and lungs are more or less congested; if there are no external

marks, no person can say positively whether the persons died from natural causes or from violence. If a person dies after a debauch, I should expect to find evidence of it in the brain or stomach. It is impossible to say how long after a person has been drinking its traces would be lost from the system; when the effect is gone, however, the liquor is gone."

Dr. Ramson testified that "he had attended post-mortem examinations in cases of death from suffocation, and lately, where two persons were suffocated by charcoal; their countenances were swollen, and the eyes somewhat protruded; there was a distortion of features (one more than the other, as the patient lay on his face); in cases of suffocation, the brain is generally congested and the blood blacker in the different vessels than in ordinary cases, and the lungs more or less congested; countenance more or less distorted; in such cases should judge more from the blood in the arterial system, than from the brain; there is no particular condition of the heart, except there is black blood."

The testimony of Dr. Middleton Goldsmith was to the same effect.

In summing up the case, Mr. Warner, the counsel for the accused, among other remarks, said, that the medical testimony did not agree, and that it was filled with doubts and uncertainty. "The positiveness," he observed, "with which medical men give their testimony is to be ascribed to the care they have of their own reputation in their profession, and to the fear they have of seeming ignorant of their profession. These witnesses disagree as to the indications of intemperance presented by the stomach of the deceased. Dr. Archer alone mentioned any. The fact will appear abundantly that she was very intemperate," etc. Mr. Brady quoted from Beck's "Medical Jurisprudence," where it is stated that most physicians are not competent to make post-mortem examinations, and hence argued that those who made the dissection in the present case were probably incompetent. Judge Kent, in his charge, came to the conclusion, after a full recapitulation of the testimony, that, first, nothing postitively certain was shown as to the cause of death; and, second, nothing positively excluded the idea that it was occasioned by suffocation,—the probability being in favor of the latter. The judge also instructed the jury that unless they found the death was occasioned by smothering, no matter in what way effected, they could not find the prisoner guilty; although they might come to the conclusion that the deceased perished from burning, or in some other manner, not stated in the indictment, and by the hands of the prisoner. Verdict—Not guilty.

Still another circumstance under which death may be accomplished by suffocation, will be found in some cases of rape. An instructive example of this kind will be found in the following German case. In it, the subsequent confession of the criminal confirmed the accuracy of the opinion given by the medical officer, which was, that after a struggle the woman had been overpowered and forcibly compelled to submit to the desires of her ravisher; who at the same time held his hand over her face to prevent her crying for help. In doing so, however, he had according to his own story, unintentionally suffocated her. The body of the deceased, in this case, presented the signs of asphyxia in a marked degree, the face being purple and turgid, the eyes injected, the lips and tongue swollen and livid, and the fingers convulsively clenched. The lungs were perfectly black with blood, and so distended that, upon incision, the blood escaped in profusion; the vena cava and right side of the heart were also gorged with dark, but coagulated blood. The cerebral veins and sinuses were not remarkably full. If the crime had, in this instance, been unconnected with rape, it is probable that some marks of violence would have been found, but the weight of the man's body, no doubt, as well as other causes, contributed to the ease with which the suffocation was accomplished.

A curious case of suffocation, unintentionally produced, is given in the London Lancet. A lad, eighteen years of age, was, by way of a joke, forced head downwards into a sack containing about a bushel of bran, by two of his fellow-laborers on the farm. According to the testimony of one of the parties, who were at the same time the perpetrators and the only witnesses of the outrage, the mouth of the sack was tied with rope-yarn, round the legs of the lad. This was almost immediately cut, and the boy released from the sack. He was reported to be black in the face and frothing at the mouth, but became sufficiently sensible to drink a small quantity of water. He breathed, however, with great difficulty, remained insensible, and lived only twenty minutes after being extricated from the sack. Upon post-mortem examination, it was found that sixteen hours after death the thorax and abdomen retained a considerable degree of warmth. At the bifurcation of the trachea a large quantity of bran was found; the left bronchus was entirely filled with it, and the right nearly so, and their subdivisions, as far as they could be traced into the substance of the lungs, were full of the same material.[6]

[6] Another case in many respects similar to this one is reported by Raymond and Dévergie. Ann. d'Hyg., July, 1852.

The following interesting and curious case occurred at Edinburgh in 1855: Janet Stewart, between sixty and seventy years of age, lived in the family of her niece, consisting of three adults besides herself and a child. All were grossly addicted to intemperance. Janet was found dead with a contused and lacerated wound of the scalp, extensive emphysema beneath the skin of the trunk and in the chest, and seven ribs of the left side fractured. The face was pale and slightly swollen, the features composed, the eyelids shut, the lips nearly closed, and the tongue slightly protruding. On examining the neck, a hard mass was felt at the back part of the throat, which proved to be the cork of a quart bottle, tightly inserted into the upper part of the larynx, the sealed end being uppermost. It was covered with a frothy brown mucus. The epiglottis, larynx, and trachea were considerably injected. The last, with the bronchi, presented a bright, florid appearance, and their whole surface was coated with mucus. By experiments on the dead body it was ascertained that when a cork, such as had here been found, was pushed along the mouth against the cervical vertebræ, the upper end was forced backwards, while the lower end was tilted forwards, and, by continuing the pressure, made to enter the larynx. It was hence concluded that the attempt to kill, indicated by the wound of the scalp and the fractured ribs, had been successfully completed by suffocation by means of the cork,—the frothy mucus around this body and the redness of the mucous membrane proving that death had not immediately followed its introduction. One of the party, who was indicted on the testimony of the rest as the author of these outrages, was tried. The jury returned a verdict of "not proven;" but a few weeks afterwards a body believed to be that of the prisoner was found floating in the Clyde.[7]

In infants, murder by suffocation is undoubtedly very common, it being very rapidly effected, and leaving no characteristic traces behind it. Death, thus criminally produced, has often been attributed to convulsions.

It is a common habit among nurses, in order to quiet a child, to thrust into its mouth a bag made of rag or wash leather containing sugar or crushed crackers. The infant is thus generally pacified, and, the mouth being filled with the bag, it breathes chiefly through the nostrils. If by any accident these should be obstructed or by a sudden act of inspiration the bag should fall back into the throat, death by suffocation must result, unless prompt assistance be ren-

[7] Edinb. Med. Journ., Vol. I., p. 511.

dered. Should this occur through the carelessness of the nurse, she may remove every trace of the cause of death by taking the bag out of the mouth.[8]

[8] Dr. Taylor states that he knows of but one instance in which it gave rise to a criminal charge. (*Reg.* v. *Cox*, Warwick Lent Assizes, 1848.)

CHAPTER VIII.

STRANGULATION.

342. Definition.— Strangulation is the compression of the neck from the outside. If this compression is done with the hand the process is called throttling; if it is done by suspension of the body so that the weight of the body is the active factor in causing the compression, the process is called hanging; if, however, the strangulation is produced by a rope or similar means, applied completely around the neck, but constricted by some other force than the weight of the body, the process is simple strangulation. As hanging is usually different from throttling and strangulation proper in respect to the person responsible for the act, it may better be considered independently.

343. Strangulation by bands.— In strangulation by bands around the neck, death is not caused entirely by the obstruction to respiration, but also by interference with the circulation in the vessels of the neck, and stimulation of the nerves of the larynx. The congestion of the brain by the impeded return of the blood towards the heart greatly accelerates the fatal result. Sometimes a rope is used, sometimes a handkerchief, a strap, a ribbon, or a strip from the bedding or some article of clothing. Sometimes it is wound several times around the neck, in other cases twisted like a tourniquet with a spoon, knife handle, or some similar body.

344. Throttling.— Throttling by hand is by far the most frequent mode in which the violence is employed, especially in cases of homicidal strangulation. It may be by compression from the front of the neck back against the vertebral column, with the other hand on the back of the neck, or by pressing the head against some resisting body. Or it may be by lateral compression of the larynx. Only slight external pressure is needed to close the glottis. Closure of the glottis is sufficient to cause death in a few minutes. Here compression of the blood vessels is of less significance than in strangulation by a band around the neck; but another element—the shock from stimulation of the vagus nerve, especially its superior laryngeal branch—at times comes in, causing sudden stoppage of respiration, in which case a short compression of the larynx produces a temporary paralysis of respiration. If the pressure be continued, after a short suspension of breathing there sets in a period of difficult breathing, followed by death, which occurs sooner than in cases of simple occlusion of the trachea. A similar result also follows often after injury to the inferior branch of the vagus nerve. Hofmann cites[1] the case of a woman attacked by a robber, who grasped her by the throat. She fell immediately. He robbed her and ran. A few seconds later the woman was found unconscious, and was restored. She knew the details of the attack until she had been grasped by the neck. She said that she instantly lost consciousness when she felt the man's hand on her neck, so that she felt neither dyspnea nor pain. The neck showed no signs of prolonged compression. Therefore the loss of consciousness was interpreted as being caused, not by suffocation, but by the pressure on the neck.

Taylor cites a similar case where an old woman was throttled in her store so quickly and so quietly that her husband, in the next room, separated by a thin partition, heard no noise or disorder. And Vibert[2] had two similar cases where the injuries were not sufficient to produce any lesions in the deep parts of the neck.

345. Symptoms.— The symptoms of strangulation are those of asphyxia, or of shock, or of cerebral congestion. The time before death depends upon the severity of the constricting force, and the place of application of that force. The greater the force, other things being the same, the more rapid the process, up to the pressure which causes a complete occlusion of the respiratory and circulatory channels. As to the point of application of the constricting force,

[1] Hofmann, Ger. Med., 1902, p. 578. [2] Vibert, Précis de Méd. Lég.

Fleischmann showed[3] by experiments upon himself that the degree and the rapidity of onset of suffocative symptoms vary markedly with the site of the constriction. When a ligature was placed between the jaw and the hyoid bone, and was moderately tightened, the effect could be stood for two minutes, when the noose had to be loosened; when placed over the larynx it had to be loosened after one and a half minutes; and when the noose was around the cricoid cartilage, it could be borne for only a few seconds.

346. Post-mortem signs, in general.—.The post-mortem signs, both external and internal, are often characteristic of the manner of death; but in the cases where death has been caused by shock, as in throttling, there may be no signs at all, or only very indefinite signs, to point to the cause of death.

347. General external appearances.— The general external appearance, if the strangulation has been associated with suffocation, may be that of asphyxia,—cyanosis, staring eyes, protruding tongue, and ecchymoses on the skin of face and neck; but more often the face is pale or dusky, the eyes not prominent, the tongue not protruded beyond the teeth, and there is not much bloody, frothy mucus on the lips, though both they and the tongue are usually bluish in color. Taylor cites two cases with bleeding from the ear and rupture of the drum membrane. The condition of the male genitals has been much disputed, the consensus of opinion being that, while the penis may be in semierection, and there may have been a flow (not an ejaculation) of seminal fluid, yet this condition is far from constant, and is not characteristic of this form of death, but likely to occur in any violent death of a healthy man. Similarly the urine and feces may be passed, as in other violent deaths, especially in woman.

348. Marks on the neck.—The most characteristic signs on the surface of the body are found in the marks on the neck of the fingers or of the band that constricted the throat. The finger marks are generally on the sides of the neck, and often can be made out clearly enough to tell how the hand was placed at the time that the act was committed, the thumb mark showing on one side, and the four finger marks on the other. The mark of the constricting band in the cases of true strangulation usually runs in a straight line around the neck, and is about equally marked on all sides. The size of the mark depends upon the size of the constricting band, varying from that of a thin string to the coarse mark of a rope. The character of the mark,

[3] Fleischmann, quoted by Ogston, Lectures on Med. Jurispr., p. 542.

too, will depend upon the material of which the cord is made,—the smooth surface of one leaving much less excoriation on the skin than the rough surface of another. If the cord is placed several times around the neck the mark may show the number of grooves and ridges, corresponding to the number of turns, and in between the grooves there may be a line of blisters, filled with serum or blood, where the skin was pinched between the several coils as the cord was tightened. Casper, however, describes a case[4] of suicidal strangulation in which the ligature consisted of packthread wound three times around the neck, and tied fast over the larynx. The mark was but slightly depressed, and consisted of only a single line, broad and white, with here and there a tinge of blue.

The color of these marks of the cord may be either dusky red or purplish, or may show without any discoloration; or, as in the cases of hanging, though less often, the epidermis may be denuded, and the skin, after drying, show a parchment-like stiffening and color.[5]

349. General internal appearances.— The general internal examination may show the signs of asphyxia if the death has been associated with suffocation; but more often the lungs and other viscera are not congested, the right side of the heart is empty, and the taches de Tardieu are more often absent. The lungs more often show, especially in infants, many small areas of intervesicular emphysema, and apoplectic nodes in place of the sharply circumscribed small ecchymoses of suffocation. The brain is usually congested, and there may be ecchymotic spots; but an actual extravasation of blood on the surface of the brain is very rare if it ever appears as a direct result of the strangulation. This fact is of considerable importance in many cases, since in death by apoplexy the turgor and discoloration of the face may occasionally lead to a suspicion of homicidal strangulation, especially if any questionable traces of constriction be found on the neck.

350. Deep tissues of the neck.— The most important internal lesions are in deep tissues of the neck. Tardieu considered the superficial and the deeper hemorrhages in the neck as more common in strangulation than in hanging, and very significant. There are effusions of blood between the muscles, around and into the larynx and the trachea, and in the sheath of the great vessels of the neck. So,

[4] Casper, Ger. Leichenöffn., 2tes Hund., Fall 59, 1854.

[5] Lines around the neck of a corpse, especially where the body is water-soaked or bloated, are not infrequently found, due to the post-mortem constriction of the collar or some band. These are, as a rule, easily identified by their character and location, and the finding of the constricting band in place when the body is discovered.

too, fractures of the larynx, trachea, and hyoid bone are more common even than in hanging. The interior of the larynx is often congested or violet in color, and the trachea may contain blood-stained, frothy mucus. Rupture of the intima of the carotids is rare. The condition of the more deeply seated organs of the neck cannot at all be inferred from the state of the skin which covers them. Tardieu has shown that even when no external bruise exists, effusions of blood may be discovered beneath the skin, among the more deeply seated muscles, and even upon the larynx and the trachea; or, if the hand has been used to effect the compression, the effusion may extend to the upper part of the neck and chest.

Where the body has lain a considerable time in the ground, and is advanced in putrefaction, the marks of strangulation, if this has been forcible, will occasionally be recognized. An instructive case is upon record, in which, after a lapse of thirty-eight days from the interment, a corpse was, by order of the authorities, disinterred. The body was already greatly decomposed, but the evidence of strangulation was obtained chiefly from the fact of the striking contrast of the integuments of the neck with those of the rest of the body. There was observed a white and shriveled space over the larynx, half an inch in breadth, and extending back on each side of the sterno-cleido-mastoid muscles, from which, also, to the nape of the neck over the second vertebra, there ran a groove of a blackish-brown color, and parchment-like appearance. It was very difficult to cut through this condensed skin, which, upon incision, gave the sensation of old, dry leather, and its section was yellowish-white, and perfectly dry. Another remarkable case occurred in Paris, where, after the body of a female had lain several years in the ground, and was reduced to an almost perfect skeleton, an examination made by MM. Boys de Loury, Orfila, and other medical jurists, proved that the woman had perished by strangulation. The third, fourth, fifth, and sixth cervical vertebræ, as well as the right clavicle, were held together by a blackish mass, in the composition of which there could not be recognized any tissue. This mass was surrounded at its lower point by several twists of a cord, two lines in diameter; the cord was in a very decayed condition, and no knot could be found upon it; its direction was exactly horizontal.

351. Diagnosis.— The distinction of the signs of apoplexy from those of strangulation consists essentially in this: that in the former none of the derangements which have been described of the parts beneath the skin can be detected.

The proofs of strangulation are also different from those of hanging. This distinction is important chiefly when a dead body is found suspended; for it must be remembered that this position generally denotes suicide, while strangulation ordinarily indicates death by homicidal violence. The cases most apt to be confounded are those in which strangulation has been effected by a cord or similar constricting band. The obliquity of the mark has been generally insisted upon as proving death by suspension. But, when the whole weight of the body has not exercised its traction, this sign may fail, and, on the other hand, the complete circular mark is often wanting, even where strangling has been the cause of death. In the latter case, also, the constricting band or cord leaves a comparatively slight impression, while in the former a deep furrow is produced. But in strangulation the injuries to the soft parts beneath the skin are very marked, while in hanging they are comparatively slight, as a general rule. The discharge of feces, urine, and semen, which has been regarded as peculiarly the effect of death by hanging, may result from almost any form of violent death, and occurs in many forms of natural death when the bodily vigor is not greatly impaired.

The signs of death by strangulation differ from those of death by suffocation, in this: that the skin markings in the latter are observed about the nostrils and the mouth, and not upon the neck; but in many cases the evidence of both forms of violence will be found combined.

352. Ante-mortem versus post-mortem strangulation.—The question as to whether the strangulation was produced before or after death is not one that would be likely to come up. The object of any one, in applying a ligature around the neck after death, would be, of course, to convey the idea that the person had committed suicide. As, however, this mode for self-destruction is extremely uncommon, and usually attended with circumstances which betray it, the presumption, in the case of a person found strangled, is that the deed was committed by another. Hence, the probability of suicide, which obtains in hanging, from the frequency with which this mode of self-destruction is chosen, is, in cases of strangulation, not to be entertained, unless direct or circumstantial evidence supports it. Moreover, the cases in which it may be possible to admit the suspicion of suicide are not those in which any doubt can be entertained, because, if the cord has been placed upon the neck merely for the purpose of concealing the fact of murder, the means by which life really has been taken will not fail to be revealed. Thus, marks of fatal violence will be found upon some part of the body, or traces of poison in the stom-

ach. Yet, if any doubt should still remain of the truth of these considerations, it also remains that the signs of death by strangulation cannot be closely imitated after death. We have seen above, that, when death has resulted from this cause, not only will the marks of the fingers or of the constricting band be found of various depths and of different degrees of discoloration, but also that the aspect of the countenance, taken in connection therewith, as well as the internal signs of death by asphyxia, will indicate the mode of death. Although the experiments made upon dead bodies by Dr. Casper show that if the attempt to imitate the mark of strangulation were made six hours after death, it would be unsuccessful, yet, as the attempt would most probably be made immediately after death, and even before life was quite extinct, it is evident that any satisfactory conclusion can be drawn only from an examination of the mark, in connection with the other signs of asphyxia. These cannot be produced after death, and we may, therefore, be certain where we find a mark indicating strangulation, and, at the same time, the face purple and congested, the tongue protruded, the eyes prominent, and the other indications of death by asphyxia, that the individual has been strangled during life.

353. Cases; accidental strangulation.— The majority of instances of strangulation are homicidal; a few cases of accidental origin are on record; and suicide by this method is very rare.

Dr. Taylor relates that a girl was accidentally strangled in the following way: "She was employed in carrying fish in a basket at her back, supported by a leathern strap passing round the forepart of her neck, above her shoulders in front. She was found dead, sitting on a stone wall; the basket had slipped off, probably, while she was resting, and had thus raised the strap, which firmly compressed the trachea. A similar case is reported by Watson (Homicide)." Should the body not have been removed from the position it occupied at the time of death, and if the evidence of veracious and disinterested witnesses relative to this fact can be obtained, there will seldom be any hesitation in admitting the possibility of the accident.

The allegation may, however, be made for the purpose of concealing crime. A person who, in a state of helplessness from intoxication or other cause, has fallen into a position in which his throat becomes compressed by a tight cravat, may possibly thus die accidentally of strangulation. But if marks of constriction be found upon the neck, it is much more probable that they were caused by criminal violence than that they were due to accident. As in courts of law un-

due stress, medically speaking, may be laid upon the possibility of strangulation marks being accidentally produced, the medical witness will do well to compare closely the impressions upon the neck with the ligature supposed to have produced it, as in many cases an important and conclusive discrepancy will be found.

353a. Suicidal strangulation.— Were there not a sufficient number of well-attested cases of suicide by strangulation upon record, it might fairly be doubted whether it would be possible for persons voluntarily to destroy themselves in this manner. But the annals of legal medicine abound with examples of the most determined tenacity of purpose, and the most singular choice of modes of death upon the part of suicides. Without dwelling upon this fact, it may be stated that in this mode of death an infirmity of purpose is less likely than in many others to frustrate the intentions of the suicide. Unconsciousness steals in such an insidious but rapid manner over the senses, that the will and power to escape are speedily lost.

The ligature used by those who thus destroy themselves is generally chosen from those articles of dress which lie nearest at hand; as cravats, garters, and the like. The knot will most probably be found in front, or a little to the side, and the mark left will convey the idea of less violence than will that made in homicidal cases, where no other injury has been inflicted. The question often arises, says Casper, whether the mark upon the neck has been caused by a certain instrument which is supposed to have been used. This question it is not always easy to answer. It is true that hard, rough substances, cords, etc., usually produce excoriations, which is seldom the case with softer ones. It is also true, as a general rule, that the breadth or diameter of the mark upon the neck corresponds to that of the instrument used. But many exceptions occur to these rules. The instrument may be of a soft texture, and yet have rough edges; it may be twisted, and the sides press against the neck, etc.

Some light may often be thrown upon cases of murder or suicide by hanging, by observing what kind of a knot is tied in the ligature, as it is known that different classes of tradesmen are in the habit of tying knots in a way peculiar to themselves.

Complicated knots and more than one coil of rope around the neck, suggest suicide. Arrangements which allow of slackening of the rope, so relieving the constriction after the victim loses consciousness, exclude suicide.

A remarkable instance, showing the rapidity and ease with which self-strangulation may be effected, is the following: A gentleman was

placed in a private insane asylum. His relatives desired the superintending physician to use every endeavor to prevent him from committing suicide, as he had repeatedly attempted it. In consequence of this request, two attendants were placed near him. Fatigued with the long journey he had made, the patient desired permission to retire to bed; the two attendants remained at his bedside. A short time after, at his pressing solicitation, these men were directed to leave his bedside, but still remained in the room, keeping a close watch upon him. In two hours afterwards the physician paid a visit to his patient. The attendants remarked that he had been, and was still, sleeping quietly, and had not stirred. Upon approaching the bed, however, and proposing a question to the gentleman, no answer was received, and, to their horror and surprise, he was found to be dead. He had torn a strip from the bottom of his shirt, rolled it into a cord, and simply tied it around his neck.[6]

Mr. Pollock, in his evidence in the case of Drory, gave the following case: "Pizzala, an Italian, about fifty years of age, employed as a porter, was found dead in the forenoon of the 3d of January, 1851, in an attic of the house of his employer. He had been missing from his employment thirty hours. When found he was lying on his back, rather inclining to the left side, with a piece of ordinary sash-line coiled four times around his neck, two of the coils so tight and imbedded therein that there was some difficulty in undoing it. The right hand held one end of the line, and the left hand the other, with a turn of line around each, to hold it the more securely. The right arm was extended, the left flexed. I made a post-mortem examination of the body on the fourth day after it was found. Externally, the face was swollen and purple, the vessels of the conjunctivæ were injected, the tongue protruded towards the left side, bloody froth issued from the mouth, and the lower jaw was slightly twisted to the left side. The skin of the neck was abraded in a nearly continuous line around it, about five-eighths of an inch in width, and presenting the appearance of being produced by two coils of the line. There was considerable ecchymosis above and below the line of abrasion. Each hand retained the impression of the line being coiled around it. Internally, the vessels of the brain and its membranes were greatly congested. The evidence before the coroner left no doubt of this having been a suicidal act. This case proves that a person may strangle himself, and that he may accomplish strangulation by

[6] Ann. Med.-Psycholog., Tome LV., p. 113.

pulling the two ends of a cord coiled several times round the neck; and that some degree of local violence to the neck may thus be produced by the ligature used."[7]

Prof. Tardieu gives[8] a long account of the case of M. Armaud, of Montpelier, a trial which excited the greatest interest in France and in England. On July 7, 1863, Maurice Roux, a servant of M. Armaud, was found lying in a cellar in a state of asphyxia, with a cord round his neck and his feet and hands tied. He rapidly recovered, and in less than three hours was quite well, except that he was mute, being not only unable to speak, but even to groan or produce the slightest sound.

The next morning he gave by signs a description of what had occurred. According to this statement, his master, M. Armaud, came into the cellar, gave him a blow behind the head, and afterwards strangled him and tied his hands and feet. This took place about 8.30 A. M., that is to say, eleven hours before he was found by the servant who always went down at that time to fetch some wine.

M. Tardieu came to the conclusion that this was false, and that Roux had fabricated the whole charge.

In forming an opinion as to the truth of the man's statement, it is, of course, of primary importance to ascertain whether the ligatures were so placed that they could not have been applied except by another person. Now, about this there can be no doubt. The cord about the neck encircled that part several times; according to one of the witnesses as many as ten times, while others gave four or six as the number of the turns. It was not fastened in any way. Its position was marked by several suggillations, which were quite recent and superficial, and presented no ecchymoses. It is therefore clear that no force was used in applying it; and the numerous turns and the absence of any knot are much more characteristic of suicide than of homicide. The hands were fastened behind the back. The cord by which this was effected was wound ten times around the right wrist, and tied with a knot at each turn. The other hand was encircled with but three turns of the cord, with only one knot. The portion of the cord between the two hands was the length of a finger. It is quite possible, therefore, that Roux may have himself tied up his hands. The cord around the right wrist was tight, and this is of importance, for the hand was not swollen, and this could

[7] Taylor, Brit. and For. Med.-Chir. Rev., April, 1852. [8] Tardieu, Ann. d'Hyg., XXI., p. 415.

hardly have been the case if the ligature had been applied for eleven hours.

The state in which Roux was found was extremely critical. His arms and forearms were cold, though his face and head were of the natural temperature. His respiration was stertorous, his pulse scarcely to be felt. His conjunctiva almost insensible. M. Surdun, who saw him a little later, says that his respiration was nearly normal, his pulse feeble, regular, and very slow. His whole body cold, the chest and abdomen being the only parts at all warm. These descriptions are not quite congruous, but they seem to show that the pulse and respiration improved rapidly under the means which were used to restore animation. This renders it probable that the asphyxia was not of long duration, and certainly that it had not lasted, as said by Roux, for eleven hours. It is true that the gradual swelling of the tissues beneath the cord might tighten it, and so render dangerous a ligature which at first produced no ill effects; but it is contrary to all experience that asphyxia should last for so long a time without a fatal termination.

It was stated by Roux that his master stood before him, and gave him a blow with a stick or billet of wood on the neck, which rendered him insensible. M. Surdan examined the neck at the time without finding any injury, but the next morning he observed a small excoriation near the insertion of the right trapezius muscle. With reference to this, three questions were put to the experts, which well illustrate the disadvantages of putting theoretical propositions without reference to the actual case. These questions were: 1. Can a blow on the neck occasion symptoms of concussion ("commotion"), or of syncope? 2. Must a blow on that part be violent, or very violent, to produce such symptoms? 3. Must such an injury always leave well-marked traces of contusion, such as ecchymoses? The answers to these questions were: 1. Yes. 2. No. 3. No. Yet, as M. Tardieu observes, it is most unlikely that a blow with a piece of wood, on a part so well protected by a large mass of muscles, should produce severe effects without causing more than slight excoriation.

It is much more probable that the injury was produced, as a similar one on the chest was no doubt produced, by the fragments of coal which covered the floor of the cellar.

Equally unsatisfactory is the statement of Roux as to what followed the blow on the head. He first described in signs that M. Armaud tied a cord around his neck, fastened his hands behind his back, and afterwards bound his legs together with a handkerchief.

The next morning he stated that the blow rendered him insensible. He even gave a third account, according to which he was stupefied and unable to move or cry out; but it seemed to him that M. Armaud practised some extraordinary action upon him, and that afterwards he became strangled and bound. He also said that he heard a noise in the adjacent cellars without being able to call out. This state of clairvoyance is certainly extremely improbable as the effect of a blow, but no less remarkable is the state of mutism in which he remained for thirty-six hours after his recovery. He could not speak a word, or even cry out, or groan. Yet he could make gestures, describing the way in which he was attacked. With the aid of an alphabet he answered clearly a long and minute interrogatory. When confronted with his master the play of his countenance indicated his feelings towards him, as well as the perfect state of his consciousness. The next morning his speech suddenly returned. There can hardly be any doubt that the mutism, like the rest of the case, was simulated.

In addition to the paper of M. Tardieu, the opinions of five other eminent physicians are given, expressing full agreement with his conclusions.

M. Armaud was acquitted in the criminal court, but was afterwards heavily fined when the case was brought before a civil tribunal. This decision has since been reversed by a superior court.[9]

Suicide by throttling one's self by one's own hands is almost impossible, for when unconsciousness occurs the hands relax, and, the constriction being removed, the symptoms clear up. But Binner describes[10] a case of a weak-minded woman who, after trying the first time, and succeeding only in causing severe unconsciousness, was later found with both hands on her neck, her elbows on her knees, and her head dropped forward, her face resting on the bed. She had strangled herself to unconsciousness, and then, her head falling forward and her face becoming buried in the bed, she had suffocated.

In case an intoxicated person should fall into such a position that his cravat or the collar of his shirt would impede his respiration, he might instinctively carry his hand to his throat to remove the constriction; but it is more reasonable to suppose that his effort would be to draw aside and away from the larynx the collar which was pressing upon it, or unfasten it in any way, than that he would imprint his fingers so deeply in the skin as to leave a visible mark.

An interesting case of suicidal strangulation is related by Dr.

[9] Yearbook of Medicine and Surgery, 1864.

[10] Binner, Zeitschr. f. Medicinalbeam., 1888, p. 364.

Simeons,[11] in which a sabre was used to tighten the ligature. The latter consisted of a cotton handkerchief, tied in a hard knot on the side of the neck. The sabre had been inserted into a loop in front, and evidently twisted several times upon its axis, so that the neck became very firmly constricted. The constriction, indeed, was so great that the sabre could not be extricated from the loop until it had been drawn out of the sheath, which was compressible. When the handkerchief was removed, it was found that a broad deep, and ecchymosed impression had been left, which was still more marked and attended with excoriation in the point corresponding to the knot. The borders of the mark had a parchment-like appearance. The individual was a corporal, remarkably robust in constitution, and destroyed himself in consequence of having been put under arrest for neglect of duty. Collateral evidence rendered the fact of suicide unquestionable.

A man about sixty years of age was found in a wood, a napkin around his neck, tightened by a walking-stick twisted through a loop in it. When found, the corpse was lying on its back, the lower limbs extended, and the arms straight and close by the sides, the whole as if the body had been laid out artificially after death. There was, however, sufficient evidence that the man had strangled himself.[12]

Mr. Thorpe, in his evidence in the case of Drory, already referred to, mentioned the case of a man who effected self-destruction in the following manner: "He passed a noose of cord over his head and then inserted a stick about 14 inches long, between the cord and his neck. Having done so, he, with the assistance of the stick, twisted the end sufficiently tight to cause almost immediate suffocation. Still, it appeared that there was time for him to insert the lower end of the stick in the inner side of the waistcoat, and the upper end was accurately adapted to the internal jugular vein and carotid artery." Other cases in which a stick was employed are on record. In this way General Pichegru died in prison, and was supposed to have been strangled by the orders of Napoleon. But the case was most probably one of suicide. The question of suicide will, however, seldom rest upon an estimate of the evidence from such circumstances as these alone, but rather upon the absence of marks of violence and other signs of homicidal interference.

353b. Homicidal strangulation.— The characteristics of homicidal

[11] Henke's Zeitschrift, 1843, H., I., p. 335.

[12] Brit. and For. Med.-Chir. Rev., Vol. XIX., p. 301.

strangulation will be found in the great amount of violence, the marks of which will be seen upon the neck or elsewhere. The marks upon the neck will be either simply broader, deeper, and more ecchymosed than those which are met with in the rare cases of suicide, or will be attended with other local injury which could result only from the application of a rude and sudden force. A case is related by Casper[13] in which there was not only a brownish-yellow groove with reddened edges upon the neck, but also three ecchymosed spots, two at the angle of the jaw on the left side, and one on the right side of the jaw. These could only have resulted from outward compression, and they were supposed to indicate a grasp of the throat by the hand, the thumb leaving its impression on the one side and two of the fingers on the other. Without doubt the murdered woman had been first seized by the throat, and then, after having been rendered senseless, was strangled by the ligature, the mark of which we have described. In a case communicated to Dr. Taylor by Dr. Campbell, of Lisburn, there was a mark on either side of the larynx, under which, also, in the substance of the muscles, coagulated blood was found. The thyroid cartilage, which was partly ossified, was fractured through the ossified portion. The case was clearly one of homicidal strangulation with the hand.

An equally clear case is reported by Dr. Wilson.[14] The body of a woman, two days after death, presented the following appearances: The right cheek and the lower part of the neck, over the collar bones, were deeply livid; the eyes were suffused and red; there was a circular contusion on the forehead; a hard and parchment-like yellowish-brown mark, about an inch and a half in length by half an inch in breadth, on the left side of the chin, running along the lower margin of the jaw; and another similar mark of nearly equal dimensions passed transversely across the throat, immediately over the larynx. There were traces of blood which had flowed from the right nostril. There was an extravasation of blood among the muscles of the neck, and the thyroid gland was largely infiltrated. The trachea contained frothy mucus; blood was effused beneath the lining membrane of the larynx; there was a fracture of the right wing of the os hyoides, and the cricoid cartilage was broken in two places. Extravasated blood was found below the left mamma and greater pectoral muscle. The brain was congested. No other lesion existed. The probable interpretation of these facts was that the woman had been felled by

[13] Gericht. Leichenöffn., 1stes Hund., Fall 49, 1853.

[14] Edin. Med. Journ., Vol. I., p. 290.

a blow upon the forehead, that the murderer had then knelt at her right side, with his face towards hers, and his right knee across her chest, causing the effusion under the pectoralis major muscle; and then, pressing her head to the floor by his left hand on the left side of the chin, producing here another mark, he had grasped her throat with his right hand, and strangled her with violent pressure, either with the hand alone or aided by a ligature. The husband of the woman, who was indicted for her murder, admitted that he was alone with her at the time of her death, which he explained by her falling while intoxicated. The judge objected to the medical evidence that it was "merely inferential," and the prisoner was acquitted! Upon which, Dr. Wilson quotes from Archbishop Whateley: "He who infers proves, and he who proves infers."

MM. Briand and Chaudé quote the case of a woman who was found dead in her bed. Some discoloration of the neck suggested the suspicion that she had hung herself, and that her family, to avoid scandal, had laid her body in bed. But a more attentive examination showed that the bruises were confined to one side of the neck, that the two horns of the hyoid bone were unusually movable, and that the thyroid cartilage was flattened; the cricoid cartilage was also broken across its middle. The brother-in-law of the woman afterwards confessed that he had attempted to violate her, and, in order to stifle her cries, had grasped her by the neck until she ceased to live. He was found guilty of murder.[15]

Mr. O. Pemberton[16] relates the following case: A maiden lady, aged sixty, who resided alone, was found one evening about half past six o'clock, lying dead at the top of a flight of stone steps leading to the cellar. The body was still warm. The post-mortem examination was made eighty-eight hours after death. The body was fresh; marked lividity of the middle third of the nose; nasal cartilages torn from the bones, and nose pushed to the right side. Mouth closed placidly; no marks of violence about gums or tongue. Anterior aspect of neck was livid and in places greenish from decomposition. Cricoid cartilage fractured on left side, fracture running through the cartilage in an angular direction, the angle jutting out and pointing to middle line. This and the thyroid cartilage were ossified in a marked degree,—the thyroid most. Blood was effused about the cricothyroid muscle and adjacent cellular tissue. Inside the larnyx the mucous membrane was uninjured, but the submucous

[15] Manuel de Méd. Lég., 6iéme ed., p. 393.

[16] Lancet, May 22, 1869, p. 707.

tissue was infiltrated for a space corresponding to the fracture. Lungs and heart in the condition usually found after death from suffocation. Vessels of brain congested.

Four persons were arrested, one of whom confessed that they had entered the house for the purpose of robbery. A fifth man, who had not been arrested, had been given the old lady in charge, and it was supposed that, in attempting to stifle her cries, he had unintentionally "squeezed her too tight."

An interesting case is related by Dr. Gräff,[17] in which a woman was murdered by strangulation, and the assassin had taken great pains to convey the impression that the act was one of suicide by hanging. The body was found lying close to a door, with a string passed twice around the neck, and fastened in a slip-knot behind. The impression made upon the neck was deep, and, for the most part, of a dark-brown color, particularly on the sides. It was perfectly horizontal. The free end of the string looked as if it had been broken. There was a peg in the door over the body, on which a towel was hanging, not in the least disarranged; the peg itself was slight and incapable of bearing the weight of the woman's body. Furthermore, there was no portion of the string attached to it. An overturned chair lay near the body; and on a writing-table in the room, a paper was found declaring the intention of suicide, and purporting to have been written and signed by the deceased. It was clearly proved, however, that this document was not in her handwriting, nor correctly signed, and the fact of her having been murdered was abundantly shown by these attempts at deception, other marks of violence upon the body, and the subsequent discovery that robbery had been committed.

One of the most interesting cases of homicidal strangulation is that given by Dr. Taylor, in Guy's Hospital Reports for 1851. The prisoner was found guilty, and before his execution made a confession, in which he stated that he met the deceased by appointment, that they talked and walked about, after which, at her suggestion, they sat down on a bank. She had come to urge him to marry her. He passed a rope, which he had previously secreted, gently around her neck as they were sitting, and had got the end of it in a loop before she perceived it. She jumped up at once, and put up her hands to save her throat, but he pulled hard and she fell without a struggle. We have thought this case of sufficient interest to present

[17] Henke's Zeitschrift, 1846, p. 145.

a tolerably full abstract of it in the note, since it offers many incidental suggestions worthy of consideration.[18]

353c. Simulated strangulation.—M. Tardieu reminds us that

[18] At the Chelmsford Lent Assizes, for 1851, Thomas Drory was tried for the murder, by strangulation, of a female named Jael Denny. He was the son of a farmer of great respectability, and resided within a short distance of the cottage where the deceased lived. Both were about twenty years of age, and the girl, who was pregnant by the prisoner, had reached the ninth month of her pregnancy. On the afternoon of Saturday, October, 12th, 1850, the prisoner and deceased were seen conversing together for about twenty minutes, in the neighborhood of the prisoner's cottage. This was about half-past five, P. M. The evidence respecting the deceased showed, that about six o'clock on this day, she had tea with her parents as usual, appearing to be in good health and in high spirits. She told her mother that she had made an appointment with the prisoner to meet him at a stile very near the cottage, at half-past six o'clock, and the prisoner, it was supposed, had led her to expect that at this interview he would make some arrangement regarding his marriage with her. At or about this time, the deceased left her tea half-finished, dressed herself hastily in some of her mother's clothing, left the house, and was not again seen alive. She was found next morning, at or about eight o'clock, lying dead in a field, at a short distance from the stile, at which she said she had made an appointment to meet the prisoner on the previous evening.

"When her body was found, the head was cold, and the arms and legs cold and stiff; but the body (the abdomen) was perceptibly warm to the hand. It will be remarked, that from the time the deceased was last seen alive, thirteen and a half hours had elapsed.

"The attitude of the body when found is thus described by the different witnesses: The deceased was lying on her face, a little inclined on one side, owing probably to the prominence of the abdomen. Her lower clothes were arranged in a straight and orderly manner, and her fur-tippet was lying on the ground, two or three yards from the body. Her bonnet was on her head, much crushed and broken. It was flattened in front as if from pressure from behind, while the deceased was on her face. Her face was flat on the ground, and her nose pressed down tightly. The nose is described as being quite flattened, and turned a little to the left side by pressure; it was impossible, in the opinion of one witness, that the mere weight of the head could have produced either this degree of pressure, or the indentation observed in the ground. The features were so altered, that, although this witness had known the deceased for four or five years, he could not recognize her. When the body was turned over, blood escaped or bubbled from the mouth, nose, and eyes; and the face was observed to be black and much swollen. There was half a teacupful of blood on the spot where the face lay—under the mouth—and more blood in another spot about a foot from the head; the hair was matted together with blood and dirt. The right arm was lying bent at a right angle underneath the body, and pressed down by its weight; the left was raised, with the hand directed towards the left shoulder, but partly covered by the body. There was a cord on the neck, which was twisted round it three times. One of the witnesses took the third turn from off the neck, and observed that this turn was a little loose; but on putting his finger to the throat, he found a knot of cord lying in front of the neck. The remainder of the cord was very tight, a portion being actually imbedded in the neck, and the cord was drawn so tightly that the skin of the neck had swollen up between the coils. From other evidence it appeared that the knot which formed the loop of the rope was pressing on the front part of the neck, while the bight of the noose was at the back part, a little behind left ear. There were three coils and a half of rope round the neck, and, with the exception of the last half coil, all were tight, the two innermost coils being so tight as to indent and cut the skin. The end of the cord went over the back of the left shoulder, and about an inch of its extremity was lying loosely (without being grasped) between the thumb and finger of the left hand of the deceased, which was raised towards it. One witness described this hand as

being stretched out a little, so that the end of the cord could be seen lying in the hand, before the body was moved or turned over. The deceased was right-handed; there was no mark of grasping, laceration, or indentation on either hand; and from the position of the bight of the noose and the direction of the coils, the cord could have been tightened only by pulling to the left of the deceased. The cord was stout, and of a thickness of a window-sash line. At the part where the noose had been tightened, the pressure had been so great that the cord was condensed to about half its thickness, and some of the fibres had been cut through by the force used. There was no blood upon it, except just at the end, where there was a small spot. The second coil had, at the back part, tightly locked in a portion of the apron of the bonnet and handkerchief of the deceased.

"A woman who undressed the deceased, six hours after the body was found, stated that she examined her face and found the mouth bubbling with blood; her tongue protruded out of her mouth, and was clenched very tightly with her teeth. Blood oozed from her eyes, mouth, and ears. Her body, from her head to the shoulders, was very black (livid). There were two marks where the cord went round the neck, quite lacerated through the skin. Upon the back of her left wrist were marks apparently of a bite from both rows of teeth—the impressions were quite distinct before they were washed, and blood was oozing from them. On the right elbow a piece of skin had been taken off, about the size of a shilling, and the patch was very black. The elbow had a bruised appearance.

"A post-mortem examination of the body of the deceased was made by Mr. Williams, surgeon, of Brentwood, on the second day after it was found. The eyes were much distended and suffused with blood, and the pupils were dilated. There was a general lividity and swelling of the face; and the tongue, which protruded from the mouth, had been bitten by the teeth. There was a superficial laceration of the skin, covering the lower part of the throat on both sides; and there were two deep marks, as if from two cords, or from two impressions of one cord tied tightly round the neck. The two impressions were both situated over the trachea, and the skin had swollen up between them. The trachea had been flattened by strong pressure, but had regained its shape; it had a bruised appearance in the parts, corresponding to the two marks on the neck, and its structure there was softer than natural. There was extreme ecchymosis on the upper part of the chest, such as might have been produced by a heavy blow, or by the pressure of a person kneeling upon it. There was a contraction of the fingers, which were drawn into the palms of the hands. There was an abrasion of the skin at the back of the right elbow. There were marks apparently of teeth, on the back of the right wrist, and there were also scratches on the back of the left arm and hand. On opening the head, there was great congestion of the whole of the brain. The heart was healthy, but much distended on the right side with blood in a coagulated state. The lungs were congested to an unnatural degree; the right pleura was adherent,—a result of previous inflammation. The stomach contained ordinary food, and the coats were in a healthy condition. The intestines were healthy. On opening the uterus it was found to contain a male fetus in the ninth month; and this was probably alive at the time of the deceased's death."

For the defense, two surgeons, Mr. Thorpe and Mr. Pollock, deposed: The first, that he thought there was a doubt as to whether the deceased committed suicide or not; the second, that he would feel considerable difficulty in forming an opinion as to the cause of death, whether suicide or homicide. Both of these opinions were founded upon cases which they had met with, but which, as they had no similarity with the present case, may here be omitted. Dr. Taylor, however, gave a decided opinion that the case was one of homicide, and his observations, which are remarkable for their minuteness and logical accuracy, we here subjoin.

"1. The deceased was right-handed, and, on the hypothesis of suicide, she must have made the tension with her left arm and hand. From the position of the loop or noose, any traction to the right would not have been tightened, but have loosened the cord.

"2. That supposing her to have exerted such a traction at all, she must have been in the erect or sitting posture. The force used, indicated by the great local violence to the neck, could not have been exerted by a person attempt-

ing to tighten a cord by drawing it to the left while in a recumbent posture, whether prone or supine. This hypothesis would, besides, leave wholly unexplained the flattening of the nose (obviously from direct pressure, not from a fall), and the fact that the deceased had bled in two places, one spot being a foot from the other.

"3. The cord must have been pulled with excessive violence in a horizontal direction by one end only, as the mark was circular around the neck. The other end of the cord formed a noose or loop, and was tightly fixed at the back of the neck. Thus, then, all the force of traction must have been exerted to the left, in which direction the right hand of a right-handed person could not act horizontally, so as to produce the amount of violence found on the soft parts of the neck.

"4. That the fact of there being three coils and a half of rope round the neck, formed an obstacle to the tightening of the cord, by pulling one end to the left so as to imbed the two inner coils in the skin, and to leave the outer, or third coil, loose. On the supposition that the deceased produced the constriction by her own act, it follows that the three coils must have been round the neck at one time, and the two inner coils sufficiently loose to allow of respiration before traction was commenced.

"5. The double indentation found on the trachea could not have been produced by the two inner coils (on the supposition of suicide), except by the great tightening of the outer coil.

"6. As insensibility and loss of power must have immediately followed the complete compression and obliteration of the trachea by the two inner coils, the outer coil ought not to have been found loose or unconnected with the object by which the force of the contraction had been produced.

"To suppose that the deceased could have produced the intense constriction by the first coil, and afterwards retained sufficient power to pass a second coil from right to left around her neck, indenting the skin and flattening the trachea as much by the second as by the first coil, involves, in my judgment, a physiological impossibility. There was, therefore, on the suicidal hypothesis, no explanation to resort to but that all three had been placed at once round the neck loosely; that one end only of the cord had then been so pulled to the left as to produce the great amount of violence found, and to tighten equally the two inner coils; while the outer coil and extremity of the cord, by which this immense force must have been applied to the two inner coils, was found lying loosely, without any attachment either to the hand of the deceased or to any other fixed point.

"7. To have indented the neck, compressed and bruised the trachea in two distinct places, to have caused effusion of blood to the amount of a cupful from mouth, nose, and ears—this effusion being found in two distinct places, a foot distant from each other—would have required a very considerable tension of the outer coil, and, at the same time, a continued tension, lasting sufficiently long for the head to move a foot after a cupful of blood had been lost as a mechanical result of the first constriction.

"8. Admitting such conditions of the body and cord to be compatible with suicide, the act could only be conceived to be possible in this case, by the fact of the end of the cord being found tightly wound round the left hand of the deceased.

"9. On the suicidal hypothesis, it would undoubtedly have required a very firm grasp of a rope to produce such effects as were here observed; and from the rapid production of unconsciousness by the compression of the trachea and the arrest of respiration, it would have been impossible on the part of the deceased, to relax the grasp. Hence the cord should have been found, either firmly held in the hand in the rigidity of death, or wound round it in a state of tension. Unless we adopt this view, we must suppose that, after having used an enormous amount of violence by a rope in the left hand, the dead body had the power of relaxing the grasp, of loosening the outer coil of cord, and so moving the hand that the end of the cord should be found lying between the finger and thumb, and barely touching the palm. Such a condition is not only physiologically, but, in this case, as it will be presently shown from the length of the cord, physically impossible."

10. (This refers to the absence of any marks of the cord upon the hands, such as would have been there, if forcible traction had been made by them.)

"11. The length of the cord renders it impossible to suppose that such a force could have been exerted by the deceased herself. The length of the cord was 59½ inches. The three coils and a

strangulation may be simulated by persons who have an interest in pretending to be victims of violence.[19]

When this mode of violence has really been attempted without a fatal result, the signs of it are evident in the discoloration and swelling of the neck, along with a marked difficulty in swallowing, and often a very great alteration of the voice. An intelligent and respectable young woman, who desired to excite an interest in her behalf, gave out that she was the victim of political conspirators, whose secrets she had discovered. One evening she was found at the door of her chamber in a state of great excitement and, apparently, alarm. She did not speak, but at first made signs, and after a time wrote that she had been attacked by a man who attempted to strangle her with his hand, and at the same time stabbed her twice in the breast. These blows had only injured her clothing, and her corset was not pierced at the same place as her dress, and the alleged throttling had not altered the character of the voice, but suppressed it entirely! No external sign of violence could be found upon her, and ultimately she confessed her trick.

half must have consumed at least 52½ inches, leaving only 7 inches for the traction. 'This,' says Dr. Taylor, 'was barely enough to reach the finger and thumb of the raised left hand, and not enough to allow of such a firm grasp by the hand as would be necessary to the production of so much violence to the soft parts of the neck. I find, by measurement, that the circumference of a small female hand in the adult is rather more than seven inches. This measurement includes only the palm of the hand without the thumb, and embraces the part of the hand around which a coil would be placed, when the object of a person was to produce firm traction. Hence, then, the hypothesis of suicide involves one of these physical conditions. Without a firm hold of the cord, which could not have been had with less than one coil round the hand, it is impossible to conceive that such violence to the neck could have been produced by the act of the deceased; and if one coil had thus been spontaneously wound round the hand, it would have consumed the whole length of the cord up to the last half coil, and left no portion whatever to give a purchase for pulling with so much violence. Either condition is a physical impossibility; and no theory will suit the facts, or explain them, excepting that which admits that the act was not the result of suicide, but of manual violence applied by another person.'

"The evidence by which the crime was fixed upon the prisoner, Drory, it is not necessary here to relate. The chain of evidence was complete and irresistible, and, as has been stated in the text, the criminal made a confession previous to his execution."

[19] See case of Roux, § 353a, *supra*.

CHAPTER IX.

HANGING.

354. Definition.— Hanging consists in the suspension of a person by a cord, or other means of constriction, around the neck. The weight of the body does the active pulling on the cord. Two general types of hanging may be considered: the one, where the person is elevated from his support, and the other, where the support is removed from under the person. In the execution of criminals in the United States and in England the support is removed from under the person, and the body drops, to be brought up suddenly by the rope. But the cases that come up for consideration before the courts are more frequently ones where the body has been pulled up, or where the fall has been so slight that there is an absence of the signs of sudden tension on the structures of the neck.

355. Cause of death.—The cause of death may be either suffocation, due to cutting off the supply of air to the air passages, or to disturbance of circulation in the brain, as in the cases of strangulation, where the compression of the vessels of the neck is the more important factor; or, in the cases where the drop is sufficient, the death may be due to destruction of the spinal cord by dislocation or fracture of the cervical vertebræ.[1] This last method is the most

[1] In cases where the rope used for sult from the injuries accompanying the suspension breaks under the strain of fall. Here, however, death can scarcely the weight of the body, death may re- be said to be due to the hanging.

prompt, and is the aim of the judicial hangman, but it is far less common in the cases of suicide.[2] That death may be due simply to the interference with circulation, or, at least, be independent of any respiratory embarrassment, is shown by the case recited by Reineboth,[3] where a man upon whom a tracheotomy had been performed committed suicide by hanging, and the rope was around the neck, above the level of the canula, which was in place at the time of the man's death. The post-mortem examination showed no signs of asphyxia, but engorgement of the vessels of the brain.

Hofmann considers compression of the great vessels of the neck one of the most important factors in the cause of death. He was unable to force liquids through the corotid arteries while the body was hanging.[4] The jugular veins were also compressed, as the vagus nerves must have been. Hofmann also found[5] the rope, in cases of suicide by hanging, to be almost invariably between the larynx and the hyoid bone, and therefore he states that death by hanging (also in some cases of suffocation), is due not to the compression of the larynx, but to an obstruction of the pharynx from a pushing back of the base of the tongue against the vertebral column. The larynx is flattened or pushed back, with its horns between the spine and the great vessels, which causes prominence of the thyroid cartilage.

356. Symptoms.—The symptoms of carotid compression, as given by Hofmann, are cyanosis of the face, dizziness, fainting, and unconsciousness; these are followed by spasmodic contractions of the muscles, an increase of blood pressure, and an increase in the frequency of the pulse. They come on promptly, with early unconsciousness. The rapidity of onset depends upon the location of the constricting noose. That in some cases, at least, unconsciousness comes on immediately, is shown by a case cited by Hofmann[6] of a suicide who was found hanging with a revolver in his hand: he had not had time to shoot himself. And also by another case, cited by Tardieu,[7] where a woman was found dead under a broken noose, with the marks of the cord and of fingers on her neck. In other cases it is evident that death does not occur for some time after loss of consciousness. Taylor cites a case[8] of a woman forty-four years

[2] See Hammond, N. Y. Med. Record, 1882, p. 426; and Calcins, Reports of the N. Y. Med. Leg. Soc., 1882, p. 254.

[3] Reineboth, Viertljrschr. f. ger. Med., 1895, IX., 265.

[4] See, also, the corroborating experiments of Ignatowski, Viertljrschr. f. ger. Med., 1893, VI., 250; and Haberda and Reiner, *ibid.*, 1894, VIII., suppl. 126.

[5] Hofmann, Ger. Med., p. 530.

[6] Hofmann, Ger. Med., p. 534.

[7] Tardieu, Annal. d'Hyg. Pub., 1865, XXIII., 341.

[8] Taylor, Glasgow Med. Journ., 1880, Vol. II., p. 387.

of age, who was found hanging. When discovered she was comatose, there was froth at her mouth, her tongue was swollen and protruding, her face bloated, her lips cyanotic. The epidermis was abraded from the larynx, where the rope had been. Her conjunctivæ were insensible, the pupils of her eyes did not respond to the action of light, her plantar reflexes were gone, there was no respiratory movement, but there was a slight cardiac impulse. She eventually recovered. Just how long she had been hanging was not determined. One old instance records[9] a recovery after being suspended for nineteen minutes. According to Glaister,[10] five or six minutes after the act of suspension is usually the limit of time up to which resuscitation is possible.

357. Post-mortem signs; external examination.— The post-mortem examination, except for the local conditions of the neck, is rarely characteristic. If death has been due in large part to asphyxia, the lividity and the facial expression may be that of suffocation in general; but more often the face is not congested nor the eyes prominent nor the tongue protruding beyond the teeth, though it may be forward in the mouth. The amount of infiltration of serum into the legs and lower portion of the body is dependent upon the length of time that the body has been hanging before it is found. Erection of the penis, with an emission of semen, cannot be considered characteristic of this mode of death, as it is found in other modes,[11] and not at all constantly in this mode; and may even occur in post-mortem suspension.[12]

Dr. Dyer made some very interesting observations[13] on the condition of the eyes in a man executed for murder. An examination before death showed nothing unusual. The post-mortem examination, thirty-five minutes after the drop fell, showed the eyeballs not more prominent than before death, the lids closed and not discolored,

[9] Berlinische Sammlungen z. Beförderung der Arzeneywissensch. etc., Berlin, 1779, X., 242.

[10] Glaister, Med. Jurispr., 1902, p. 138.

[11] Klein observed the penis in a state of erection in a man who had committed suicide by shooting; Schlegel observed freshly effused semen in a youth who had thrown himself from a church tower and fallen upon his head; and a case of poisoning with Prussic acid is related by Merzdorf, in which the penis was found in a state of semierection, with the spermatic fluid effused. *Vide* Siebold, Handbuch der ger. Med., § 343.

[12] Orfila cites two cases of erection of the penis in the bodies of men that were hung, three and five hours, respectively, after death. (Bull. de l'Acad. Roy. de Méd., 1839.) On the other hand, Casper says that he never saw erection of the penis in a man who had died from hanging, and in a very small proportion of the cases only a slight degree of turgescence. In seventy-seven cases collected by Casper the seminal discharge was noted in nineteen. (Brit. and For. Med. Rev., Vol. V., p. 615.)

[13] Dyer, New York Med. Journ., Vol. III., 1866, p. 416.

scarcely any tension in the eyeballs, the cornea a little dull, and moist from mucus, the pupils a little more dilated than before death. The right eye showed a fracture of the anterior capsule of the lens, extending backwards into the substance of the lens. It gave even to those present, unaccustomed to the ophthalmoscope, the idea of a plane extending backwards. The left eye presented the same transverse fracture just below the center of the lens, but involving only the anterior capsule of the lens. The weight of the fall coming principally on the right side (the knot being under the left ear) probably explains the difference in the two eyes. Dr. Dyer repeated the experiment upon three dogs that he hanged. Dog number one showed lesions similar to that in the man; number three died with convulsions that lasted a short time, and the lesion was found in one eye well marked, but the other eye was normal; number two died with prolonged convulsions, and no lesion could be observed.

358. Examination of neck.— In the examination of the neck from the outside the diagnosis of ruptured muscles or of fractured or dislocated vertebræ may be made by the irregularities in contour of the neck, and the abnormal mobility of the head upon the shoulders.

The most significant external evidence is the mark of the cord on the neck. In persons who are hung the cord almost invariably leaves some impression.[14] The furrow round the neck may be either

[14] The following is certainly an anomalous case. The facts were observed at a public execution. The rope used was ten lines in diameter; the knot was large, formed of three turns of the rope, and, on the noose being tightened by the executioner, corresponded to the occipital protuberance. The bolt being withdrawn, the man fell through a space of 7½ feet. "The body fell with a tremendous jerk, and oscillated for a few minutes; the arms and legs became rigid; the forearms flexed on the arms, the fingers upon the palms, and the thighs adducted and slightly drawn up towards the abdomen; the sternomastoid muscles were affected with spasms, and the hands became livid. After a short time the limbs relaxed; the legs approached each other, the toes pointing downwards; the hands became pale, fell down by the side, and the fingers became relaxed. The body, having been suspended for forty-five minutes, was cut down, and the cord removed from the neck. There was not any protrusion or unnatural suffusion of the eyes; the upper and lower teeth were half an inch apart, and the tongue was indented by them; the lips were rather livid, and the face pale; a slight depression marked the position of the rope; there was not any discoloration of the integuments of the neck, breast, or shoulders; the thumbs and fingers were flaccid; the cap in which the head had been enveloped was slightly stained by bloody mucus, which had flowed from the mouth and nose; the bladder was empty, the criminal having made water a few minutes before his execution; the penis appeared as if it had been recently erect; it lay upwards against the abdomen, and a thin, transparent fluid had stained the shirt;" numerous spermatozoa in it were detected under the microscope. Eighteen hours afterwards, the body having, in the meantime, lain upon its back, it was found to be rigid; the face, lips, and ears were purple, the shoulders and the upper and front part of the chest, also; the mark of the rope was scarcely perceptible, there being only in one place, for about the extent of a quarter of an inch, a slight parchment-like discoloration of the skin. The portion of the

single or multiple, depending upon the number of coils of the rope. When multiple the furrows are usually in the form of a figure eight, one of the coils lying more or less horizontal, and the other slanting upwards to the knot. If the rope has been removed this double line may lead to the thought that there was an attempt at both strangulation and hanging; but the continuity of the line, if the tracing on the skin is clear, will point to the correct interpretation of the marks. If the hanging has been done by a double ligature, or one of several strands, then the several lines will lie parallel. If the epidermis has been peeled off by the rope, and the deep layers of the skin allowed to dry, the mark assumes a tough, leathery appearance. These marks persist several months, and do not disappear even in decomposition. On the other hand, if the epidermis is not peeled off, as is often the case with soft, wide cloths, the mark of the constricting band may be either indented, with a certain amount of discoloration, usually bluish, or, if the constriction has been less marked, there may be no indentation, and only a pale line on the skin. These soft, non-leathery marks of the cord may disappear with decomposition.

The direction of the mark of the rope is to be noted carefully, for on that depends, to a large extent, the diagnosis between strangulation, with its probable homicidal origin, and hanging, which is more often suicidal. In hanging, the direction of the rope is such that, instead of going directly around the neck, as it does in strangulation, it is inclined upwards at the point of the knot in the rope. The mark of the rope is usually horizontal across the front of the neck, and slants upward at the side or at the back of the neck, often disappearing above the hair line at that point. The knot of the rope may, of course, lie at any point in the circumference of the neck, and in cases of suicide, where a portion of the body still rests upon the support, the line of the noose may be only very slightly inclined, simulating closely the direction of the rope in cases of strangulation. The position of the mark of the noose is usually between the hyoid bone and the jaw, as the tendency is for the rope to slip up until it comes to some distinct hindrance, as that supplied by the head.

skin covered by the rope having been removed, there was not found the slightest extravasation of blood, nor any peculiar silvery-white appearance of the areolar tissue, and none of the blood-vessels or muscles were at all injured; the thyroid cartilage was slightly flattened, but not broken, and there was no dislocation or fracture of the vertebral column, or injury of the ligaments or spinal cord. The brain, lungs, and right side of the heart were congested with blood, and the mucous membrane of the larynx was of a bright-red color. (On Death by Hanging, etc. By Charles Croker King, M. D., M. B. I. A., Professor of Anatomy and Physiology, etc. Dublin Quarterly Journal, August, 1854.)

359. Internal appearances.— The general internal appearances after hanging are not characteristic or constant. As in strangulation, where death has been due in large part to suffocation there may be the signs of suffocation: congestion of the lungs, subserous ecchymoses, and froth in the trachea. Likewise the congestion of the head above the noose is not constant, for the deep vertebral vessels are not compressed, and there is usually opportunity for the blood to return through them. The condition of the abdominal organs varies also a great deal. There is usually, however, a hypostatic congestion of the abdominal viscera in proportion to the time that the body remains hanging.

360. Deep tissues of the neck.— The local conditions in the deep tissues of the neck are the most characteristic signs of hanging. The skin of the furrow produced by the rope, and the subcutaneous tissue beneath it, are generally anemic; the tissues in the adjacent parts are at times ecchymotic, especially in the sheath of the great vessels. Brouardel says that there is an ecchymosis beneath the mucosa of the posterior wall of the pharynx that is characteristic. Frequently there is a rupture of the muscles of the neck,—most often of the sternomastoid muscles on one or both sides. Lesser,[15] in fifty cases, found the sternomastoid on one side ruptured seven times; on both sides, three times; the platysma myoides ruptured five times; the sternohyoid and sternothyroid each ruptured twice; and the omohyoid ruptured once. Fracture of the hyoid bone and of the greater horns of the thyroid cartilage are fairly common, but are frequently not associated with any hemorrhage, on account of the compression of the great vessels.

The internal coat of the carotid arteries, especially in old people, is at times ruptured,—a condition found in from four to eight per centum of the cases.[16] Fractures and dislocations of the vertebræ in suicides are rare. In English and American judicial hangings they are more common. In some instances there may be even laceration of the tissues, forming an open wound; or even a complete severance of the head from the trunk.

A case of suicide by hanging, in which injury to the cervical vertebræ was done, is reported by M. Aniaux, of Liege. He found, in the body of a woman who had hung herself, that the posterior ligaments of the spine, between the first two cervical vertebræ, were ruptured, and the transverse ligament of the atlas so stretched that the odontoid

[15] Lesser, Viertljrschr. f. ger. Med., 1881, XXXV., 201.

[16] Peham, Viertljrschr. f. ger. Med., 1894, VIII., suppl. p. 176.

process of the second vertebra was locked against the articular surface. The perpendicular and oblique ligaments were not injured. The first two cervical vertebræ were considerably separated behind, the spinal cord was injured, and extravasated blood found at the place of separation. The deceased was a stout woman; when discovered, she was hanging from a beam of the ceiling, and her feet were about a foot and a half above the ground. Near her there was a chair overturned.

Another case is reported in the Lancet by Mr. Campbell de Morgan:[17] "A married woman, aged fifty, worn out and exhausted by disease, was found hanging quite lifeless from the rail of a bed, which was not more than 5 feet, 8 inches from the ground. The front of her body was turned round towards the bed, the head thrown forcibly back; the knot of the ligature, an old silk handkerchief, being placed in the middle of the under side of the chin. Her heels were about 3 inches from the ground, the knees being on a level with the bed-frame and resting against it. The body was seen by a medical man, about an hour after it was cut down. The features were perfectly calm, and there was no trace of congestion about the face; it was pale and in all respects natural. There was no lividity; the eyes were neither injected nor prominent; the tongue pale, lying far back in the mouth, and without any mark of indentation. The cord-mark well defined, and like parchment, dry, brown, and hard, without any ecchymosis, but with a thin line of congestion at the upper edge of the groove; it was very deep at the back of the neck, just over the atlas, probably owing to the head hanging backwards. The mucous membrane of the stomach was pale; the lungs natural; no congestion of the large veins, or of the cavities of the heart; the two ventricles contained about an equal quantity of blood. These appearances seemed to show that death was not caused either by asphyxia or by cerebral congestion. Neither the trachea nor the great vessels of the neck could have sustained any pressure or constriction. The deep muscles over the second and third cervical vertebræ were ecchymosed; this ecchymosis extended to the sheath of the spinal cord; and on the left side, and exterior to the sheath, there was an extensive effusion of blood, firmly coagulated. There was no displacement of the second or other vertebræ, and the ligaments were sound; but between the third and fourth vertebræ there was unusual mobility, as if they

[17] Lancet, Aug. 10, 1844, quoted by Taylor, Med. Jur., p. 503.

had been stretched. In this case, the body was not heavy, and the fall, if any, could have been but trifling. The effusion on the spinal cord was the cause of death; and its origin was sufficiently explained by the falling back of the head and sudden bending of the cervical vertebræ. Her husband and family were in an adjoining room, but heard no noise; it was only by accident that the deceased was discovered."

361. Associated lesions.—In addition to these lesions due directly to the hanging, there may be lesions due to the striking of the body against objects in the neighborhood during the fall, or during convulsive movements. Again, there may be injuries produced by the fall to the ground, if the body is indiscriminately cut down when it is found.

Hofmann reports[18] a case of fracture of the skull, and another of rupture of the liver and intraperitoneal hemorrhage, due to the cutting down of a corpse, and letting it fall to the ground.

These associated lesions should be noted carefully, for they must be distinguished from the lesions due to previous violence inflicted by the person on himself, in cases of suicide, or by others, in cases of homicide. It is on the evidence of the additional violence that the diagnosis of homicide rests, to a great extent.

362. Ante-mortem versus post-mortem suspension.—The differential diagnosis between ante-mortem and post-mortem suspension is always one of great importance, because there have been many instances where, after killing a person, the murderers have hung up the body, to simulate suicide, hanging being more frequently suicidal than homicidal. The only lesions which are characteristic at all of hanging are those of the neck; and the superficial marks of the cord may be produced (both the dried, leathery marks and the soft-bluish or pale marks), equally well post-mortem. Orfila[19] suspended the bodies of persons of different ages at various periods after death from the moment life was extinct up to twenty-four hours afterwards. In every one he found the same brown and parchment-like furrow which has been described as produced in the living. Dévergie made similar experiments, with a like result. Those performed by Dr. Casper,[20] in addition, prove that when the bodies of persons have been hung within two hours after death, the mark upon the skin may be also slightly ecchymosed. In one case, the first of his series, a man was suspended by a double cord passed above the larnyx an

[18] Hofmann, Ger. Med., p. 554.
[19] Annales d'Hygiène, Tome XXVII.
[20] Brit. and For. Med. Rev. Vol. V., p. 615.

hour after death from typhus. In about twenty-four hours the body was cut down and examined. "Around the neck, between the larynx and os hyoides, was a double parallel mark, about three lines deep, of a brown color, with a slight tinge of blue. There were traces of cadaveric ecchymoses about the body. The whole appearance was such that any individual not acquainted with the circumstances would have supposed that the deceased had been hanged while living. Some spots on the right side of the neck were strongly colored. The skin of this part was hard, like leather, and in patches slightly excoriated. There was no extravasation of blood in the cellular texture, but the muscles of the neck beneath were of a deep violet color. In the two next cases, the body of a young man, aged twenty-three, suspended an hour after death from phthisis, and that of a man, aged seventy, two hours after death from dropsy, each by a double cord, and the bodies examined on the following day, the appearances were similar; there was a double depression around the neck, of a yellowish-brown color, without ecchymosis. The cutis looked as if burnt, and was like parchment, both when felt and cut. There was no blood extravasated in the cellular tissue beneath." In other cases in which the body was hung at later periods after death, there was neither ecchymosis nor the parchment-like appearance, the mark of the cord being merely a slight depression in the skin. In the case, however, of a child, a year and a half old, on whose neck, the day after death, a small cord was tightly drawn, a small bluish-colored mark was produced. There was no blood, however, extravasated beneath it. The nature of the ligature, as, whether it be a cord or some soft material, such as a handkerchief, does not make much difference in the character of the mark, except, of course, that where a cord is used it is better defined in every respect. The yellow and parchment-like appearance may, however, be produced by either kind of ligature.

Of the lesions in the deeper tisues of the neck, if there is a considerable extravasation of blood about the point of laceration, death may be affirmed to have taken place after, or possibly immediately before, the lacerations were produced. But the evidence of post-mortem suspension rests more upon the evidences of other causes of death in addition to the hanging, and in the evidence from the circumstances under which the death occurred, as shown in the following case:[21]

A gamekeeper, thirty-two years of age, robust and hardy in his

[21] Henke's Zeitsch., 1835, H. 3.

constitution, was found hanging upon a tree in the forest, three days after he had left home in pursuit of poachers. The deceased was suspended by his cravat to the branch of a young oak tree, and so near to the branch that the right side of his face was in contact with it. His feet were rather more than three feet from the ground, which bore no traces of a struggle. The tobacco pipe of the deceased was found about forty paces distant from the tree, but his hunting-knife and rifle were nowhere to be found. The cravat had left the following mark upon the neck: a groove from a half to three-quarters of an inch wide, the skin in it brown and parchment-like, and over the thyroid cartilage three-quarters of an inch deep. The indentation was more superficial upon the left side. The direction of the mark was horizontal to the back of the neck, and thence upwards on the right side to the angle of the jaw. At this point, corresponding exactly to the knot of the noose, the skin was very deeply ecchymosed and also excoriated. The right ear was greatly discolored, as well as the integuments around it. The skin of the face and head was excoriated in many places, and bruised and lacerated also. There were, moreover, a great number of small, lacerated wounds upon the hands and arms, and bruises on the knees. No other external injuries of serious character were found. The os hyoides was broken, and the muscles and soft parts of the neck infiltrated with blood. The horizontal direction of the mark upon the neck, the extreme tightness with which the cravat was fastened upon it, the fracture of the hyoid bone, together with the large number of trifling wounds, led the examiners to give as their opinion that the deceased had been overpowered by numbers, thrown down, strangled, and afterwards hung.

Casper relates a similar instructive case.[22] A sailor was killed by a stab in the heart in a brothel in Amsterdam. The women washed the body of the blood, put a clean shirt on it, and suspended it by the neck. On the examination of the body the presence of the above wound, coupled with the absence of the signs of asphyxia, led to the proper interpretation of the findings. Had a careless examination been made, however, it is not impossible to conceive how this act of homicide might have been mistaken for one of suicide.

363. Suicidal versus homicidal hanging.—The distinction between suicidal and homicidal hanging likewise depends to a certain extent upon the lesions of the neck. The suicide generally uses the least

[22] Casper, Forensic Med. Syd. Soc. Edit., Vol. II., p. 191.

amount of violence necessary for the production of his end, and therefore the lesions of the deep tissues of the neck are slight, so that the greater the disturbance of the conditions in the neck, the greater the probability of outside interference. Especially is this true in injuries to the larynx. With exception of the injuries to the greater horns of the larynx, any injury here is very suggestive of murder, especially murder by throttling. Homicidal hanging of adults, however, is very rare, owing to the difficulties in the execution of any such design compared with the ease of other methods. For a single man to hang another the conditions must be exceptionally favorable; but hanging by mobs, as in the lynchings of people, whether at large or already in the care of the state, which are done with the active or silent approval of the majority of the inhabitants of the neighborhood, seems possible in spite not merely of the man's resistance, but of the protection which the law can give to those in its custody. The proof of homicidal hanging depends to a great extent upon circumstantial evidence.

Formerly one of the strong arguments used in support of homicidal hanging was the position of the body,—it resting more or less upon a support; but recently less significance has been attached to the position of the body, and the fact that more or less of the body rests upon the ground has been held rather as evidence of suicidal hanging. Hofmann describes[23] a large number of cases of death by hanging, giving pictures of the positions in which the bodies were found. In some just the tips of the toes touch the floor; in others the victim is practically kneeling; in others sitting; in others squatting; and in some lying down,—only the weight of the head and shoulders being held up by the rope.

Even the fact that the hands and feet of the victim are tied does not give evidence that the act was homicidal. In such cases the opinion of the examiner will be guided, in a measure, by the remaining indicatory evidence. Thus, if an individual is found suspended from a position which he could not have reached by the means at hand, the fact that his hands and feet are tied will certainly support the assumption that it is a case of homicide. But if, on the other hand, chairs or any other means of support are found near the deceased, this presumption will no longer hold, since it is evident that the person may have, himself, applied these ligatures, and then hung himself by thrusting his head through the noose and overturning or pushing away the means of support.

[23] Hofmann, Ger. Med., p. 556.

It is, however, of importance to observe whether ligatures upon the wrists are tied in such a manner as could have been done by the person himself. The following remarkable case[24] may be cited in illustration: "John Robinson, a married man, aged thirty-four, was admitted into the asylum of the workhouse, on the 24th of November last, having been in a desponding, melancholy state some time, caused by religious delusions. He had attempted to destroy himself several times, by throwing himself out of the window, and rushing into the fire, and said he had a desire to hang himself. On admission, his hands were found much burnt. He refused his food for some days, but continued gradually to improve for the ensuing six weeks, and went to bed in a tranquil state on the evening of the 5th inst., about nine P. M. He was found next morning at half-past six, suspended to a bar of the window of his cell, by means of the bandage which he had taken from his hands and folded double. His wrists were fastened together behind his back, by a piece of bandage, in which two running nooses had been made and slipped over his hands, and then pulled tight. His ankles were tightly fastened together, and his night-cap was pulled down over his face, below his nose. The toes almost, if not quite, touched the ground; the body hanging between the bed and a night chair, with the face towards the wall. On cutting him down, it was apparent, from the coldness and rigidity of the body, that he had been dead some time. The features were quite composed; no discoloration of the face; eyes in the natural position, if anything a little depressed; no froth at the mouth or protrusion of the tongue, or lividity of the neck, but, on the right side, extending nearly from the angle of the jaw to the commencement of the thyroid cartilage, the skin was cut through, as if with a blunt knife, to the depth of nearly a quarter of an inch. The hands and feet were extended and pointed downwards. No erection of the penis, or emission of semen, urine, or feces. The body, in fact, presented the appearance of that of a person dying from other causes, and being afterwards suspended. It was only the absence of suspicion of any kind that made the cause of death appear satisfactory. He must have first taken the bandages from his hands and cut them into suitable pieces, then stood on the night-chair, then tied his legs, then fastened the noose around his neck and pulled the cap over his face, and lastly, slipped his hands behind his back, put the nooses over his wrists, and then jumped off. His friends would not permit

[24] Lond. Med. Gaz., Vol. XIV., p. 388, by Mr. J. H. Taylor.

a post-mortem examination, and the coroner did not consider any medical evidence requisite."

364. Cases; accidental hanging.—Accidental hanging rarely is found, and when found is under such circumstances that there can be little doubt of the unintentional nature of the suspension. Glaister cites[25] three cases, one of a boy who went into the cowshed to play. There was a swing attached to a beam across the upper part of the shed. The boy climbed up to this beam with the intention of sliding down one of the ropes of the swing; but in his descent a woolen cravat which he wore round his neck caught in a large nail in the beam and he became suspended. Fortunately his father found him in time to restore him, though he was black in the face and unconscious when rescued. In the second case a boy had climbed an apple tree after fruit. He slipped between the branches, and his jacket, which was buttoned at the neck, turned up round his neck and strangled him. When found he was dead. A third case of accidental hanging, involving culpability of the mother, occurred under somewhat remarkable circumstances. The mother, in order to punish her child—a girl of three years—tied the child's arms above the elbows with a stocking, which she then passed around the body. To the stocking behind she attached one end of a cord, and fastened the other end of the cord to a ring in the wall of a dark closet about 5½ feet above the floor, and about 2½ feet above the child's head. At the end of three hours, which was the term of punishment, the mother went to let out the child, but found that her child was dead, having been suspended by the cord. It is difficult to account precisely for the cause of suspension, but, in any case, a mark was found on the child's neck at the lower part of the trachea. The mother was charged with the crime of manslaughter, found guilty, and sentenced to one year's imprisonment.

364a. Homicidal hanging.— Homicidal hanging, except in cases of helplessness, could scarcely be accomplished by one assailant. Ogston, however, relates one case[26] of a woman who was tried in Edinburgh in 1827, for hanging her husband. This she effected by passing a noose round his neck while he was asleep, and then pulling him up. Usually more than one person is involved in the commission of such crimes. One of the most sensational crimes of Paris was perpetrated in this manner in 1888, in the murder of a man named Gouffé.[27] A girl named Bompard, who had formed an illicit ac-

[25] Glaister, Med. Jurisp., p. 146.
[26] Ogston, Lectures on Med. Jurisprudence, p. 532.
[27] Lacassagne, Archives d'Anthrop. Crim., 1890.

quaintance with the victim, had an interview with him in her room, where the arrangements for the murder had been previously made. In the alcove of the room, the background of which was a curtain, was a sofa, on which the victim was seated, with the girl, Bompard, on his knee. In the roof of the alcove a pulley had been fixed, hidden by the curtain, behind which the girl's accomplice, Eyraud, was secreted. Bompard playfully passed a silken noose round the neck of her victim, and then adroitly handed the free end to her accomplice behind the curtain, who immediately attached the loop over a hook at the end of a rope suspended from the pulley, and at once pulled up the victim. After the death they robbed the body, put it in a box, and conveyed it some distance from the scene of the crime, where they left it. Two weeks later the body was discovered and examined. The girl later confessed the mode of commission of the crime.

In the following case, the evidence of homicide was derived from various sources: "The deceased was found sitting in a corner of her room, with a narrow tape around her neck, hung loosely and singly over a small brass hook, about 3 feet above her head. Her clothes were placed smoothly under her, and her hands stretched out by her side. There was a severe bruise on the right eye, and there were marks of blood on the tape, as well as on the floor and wall of the room at a distance from the body. There was a stain of blood on the knot of the tape where it passed over the hook; and there was no blood on the hands of the deceased. The windpipe for about an inch and a half was lacerated longitudinally in its rings, and there was a deep mark round the neck in the course of the double tape, as if from great pressure applied by some person, or from the weight of the suspended body. The latter hypothesis was untenable. The body of the deceased did not weigh less than 126 pounds, while the tape found round her neck broke with a weight of 49 pounds; hence, the deceased never could have been suspended by it." The prisoner confessed the crime.[28]

364b. Suicidal hanging.—Hanging as a means of suicide is the more common occurrence. But the question of proof of suicide is not always simple when wounds are found upon the body of the suspended person. A determined suicide may try various methods before accomplishing his purpose. Glaister quotes[29] a most persistent attempt of a prisoner in a Glasgow prison, where the fact of suicide was unquestionable. This man tried first to hang himself, but the

[28] Taylor, Med. Journ., 5th ed., 754. [29] Glaister, Med. Jurispr., p. 146.

ligature broke; he next tried to smash his skull by butting his head against the wall of his cell. By this means he produced a considerable number of wounds, but not sufficient to end his life. The next time he suspended himself from the ceiling by a bed sheet, which he fastened to a strap around his neck. This time he was found dead. Glaister also quotes a case from Ogston of a man who cut his throat with a razor; and though he lost much blood, he managed to go to an outhouse and hang himself.

Another remarkable case in which the suicidal nature of the act was clearly determined is reported by Dr. Heyfelder;[30] it occurred at the prison of Sigmaringen, in Germany. One of the prisoners, who, a few hours before, had been left by the turnkey in his cell, of which the latter alone had the key, was found hanging from the jamb of the door. The ligature used was his own silk cravat, twisted into a cord, 3½ feet long, 2 inches broad, and 4 lines thick. His head was sunk upon his breast, his face pale and without expression, the lips blue, eyes, tongue, and mouth unchanged in position and appearance. The arms were brought forward over the stomach, and were rigid; the fingers were bent, and the feet extended and touching the ground. The mouth of the deceased was stopped with his own handkerchief. The mark of the cord was oblique, commencing between the os hyoides and thyroid cartilage, and ran upwards and backwards to the occiput. The skin was brown, and in some places shriveled, but there were no ecchymoses. Five contused and lacerated wounds were found upon the sides of the head; the right ear also was lacerated, and a portion of the head and face covered with blood. On the sharp edge of the window-sill, which was only 2 feet from the floor, traces of dried blood and hair were found, and on the wall below the window there were several lines of dried blood running towards the ground. Had this case occurred in any other place than in a locked prison-cell, with a single occupant, the wounds upon the head, and the handkerchief thrust into his mouth, would have raised a very strong presumption of homicide, and perhaps involved the life of an innocent person.

We would here refer the reader to another case of hanging, singular and important from the fact of the woman having previously inflicted upon her own head, with a hatchet, no less than fifty-five wounds, some of which penetrated to and fractured the bone. Besides these, there were twenty-six superficial incised wounds upon the breast and the stomach, made from three to four days previously, as

[30] Henke's Zeitschr., 1849, H. 1.

they were in a state of suppuration. The loss of blood must have been very great, being estimated at three pounds. Yet this woman had been able to leave the room where she had committed this violence upon her own person, and proceed to a stable at the back of the house, and there, mounting upon a milking-stool, attach the cord to a beam, and consummate the act of self-destruction. In this case the indentation of the cord left no discoloration of the skin, probably owing to the loss of blood. The deceased had long been melancholy, and this, together with other facts and circumstantial evidence which came out upon investigation, left no doubt that the act was suicidal.[31]

The influence which the discovery of wounds and marks of violence upon the body of a person found hung will exert in the determination of the voluntary or passive character of the act must be decided, in each case, by the light obtained from an inquiry into the possible motives for suicide, into all the circumstances connected with the act, and into those general principles elsewhere referred to for the discrimination between self-inflicted and homicidal wounds. In some cases the injury may have been of accidental origin, as indeed may the hanging itself; but the case is hardly conceivable in which the true nature of the latter could not be ascertained, or the former not rendered probable. In conclusion, we would repeat the statement, that hanging is pre-eminently a suicidal mode of death, and strong evidence, both medical and other, will be required in any given case to overthrow this presumption, it being far more likely that a person would inflict barbarous injuries upon his own person, and then hang himself, than that a murderer would resort to so difficult and unusual a mode of assassination. This form of homicide can hardly be regarded as practicable unless there be an exceeding disproportion between the strength of the murderer and that of his victim. It can only be taken into consideration when the body found hung is that of a very young or feeble person, or one whom infirmity or temporary unconsciousness may have rendered helpless.

[31] Henke's Zeitschrift, 1850, H. 1 (Krügelstein).

CHAPTER X.

DROWNING.

365. Conditions necessary for drowning.— Drowning is the form of suffocation where the access of air is decreased by submersion of the respiratory openings beneath some liquid medium, most frequently water. If the person be unconscious or helpless, a very small quantity of water is all that is necessary; but in the majority of instances of death from drowning the whole body is submerged. That death is not due simply to exclusion of air seems to be shown by the experiments made upon dogs. Some London researches[1] showed death to follow asphyxia proper in three minutes and fifty seconds, while in drowning, one and a half minutes was sufficient.

366. Types of death.— Two distinct types of death seem to be distinguishable in cases of submersion: One, where the person, after a certain period of holding his breath, breathes in the water which covers his mouth and nose; the second, where, at the time of submersion, the person is in a condition of shock or syncope with inhibited

[1] Report on asphyxia by committee of ciety of London, Medico-Chirurgical the Royal Medical and Surgical So- Transactions, 1862, Vol. XLV.

physiological activities of all kinds, and does not breathe at all after striking the water. This latter mode of death appears to be dependent upon some nervous factors, and does not occur in animals. This second type is given in explanation of the cases where the person, after submersion for considerably longer than the time necessary for asphyxia, has been rescued and restored to life.

367. Time of submersion without drowning.— The time which a person can remain under water without signs of drowning depends, to a large extent, upon the practice which the person has had. The deep-sea divers who make their livelihood by gathering sponges, coral, and pearls, ordinarily remain under water from a minute to a minute and a half. Even the most liberal estimates do not make the time under water more than two minutes. Individuals who give exhibitions of prolonged submersion in large glass aquariums, placed in full view of the spectators, do not go to the depths that these divers do, but remain for a longer period.[2] Taylor says that the person who appeared some time ago in London under the name of "Lurline" could stay under water for three minutes. In London, too, on April 7th, 1886, James Finney stayed under water four minutes, twenty-nine and one fourth seconds; "Professor Beaumont" at Melbourne, on December 16th, 1893, made a record of four minutes and thirty-five seconds; and more recently "Professor Enochs" at Lowell, Massachusetts, stayed under water four minutes, forty-six and one fifth seconds. These instances would have but little weight from a legal standpoint, except in special cases.

The rapidity with which life is extinguished by drowning depends upon the frequency and the completeness of the renewal of the air in the lungs. In some cases, even though the person has been taken out of the water almost immediately, he has been found to be dead. If the individual has come several times to the surface of the water, and breathed, he will, of course, not die so quickly as one who has not had this opportunity; but it is probable that, in cases of drowning, where the person has not been able to support himself above water, life is extinct within five minutes. Where the submersion has been complete from the beginning, life can scarcely be prolonged more than two minutes. Woolley, the surgical attendant at the receiving house of the Royal Humane Society, in Hyde Park, believes[3] that very few lives are preserved after four minutes of complete submersion. He, however, saw two cases recover that he believed had been under water

[2] See Gould and Pyle, Anomalies and Curiosities of Medicine, p. 513.

[3] Brodie's Lectures on Pathology and Surgery.

five minutes. Voisin[4] says that of eighty-seven drowned people who were restored to life, eight remained five minutes under water, and thirteen longer than that period,—one of them twenty minutes. This last case he explained as one of inhibition of respiration. Laub[5] cites a case of resuscitation after fifteen minutes, and there is another case of twenty minutes reported from the United States.[6]

368. Symptoms.—The symptoms of drowning in the cases of inhibition are merely those of shock,—the loss of consciousness and the absence of all activities for an indefinite period until death supervenes. The cases are rare and have not been well understood. The symptoms of the usual type may be divided into three stages.[7] In the first stage the person voluntarily holds his breath,—a period which lasts in the neighborhood of one minute. In the second stage the symptoms of dyspnea come on. It is no longer possible for the person to hold his breath, and a series of short inspirations begins, each inspiration being followed by forcible expiration, due to the irritation of the larynx by the water that is inspired. The person is conscious, and the reflexes are normal. In the third stage there commences the unconsciousness, loss of reflexes, and convulsions. With the loss of reflexes the water is breathed deeply into the lungs, the inspirations being long and deep, with open mouth and bending of the trunk. Until this terminal stage very little water has entered the lungs; a large part of that which has entered the mouth and nose has, however, been swallowed; but in this third stage the fluid enters freely, even to the finest bronchi or alveoli. Brouardel and Logé[8] measured the quantity of water that entered the lungs in the different stages of drowning in the dog. In the first stage, which lasted seven seconds, there entered 210 c.c. In the second stage, lasting twenty-three seconds, no water entered; but in the third stage, during the first fifteen seconds, 407 c.c. entered the lungs. The following two minutes admitted 45 c.c., the next minute 90 c.c., and the next forty-five seconds admitted 30 c.c.

369. Post-mortem appearances; external.— The post-mortem appearances of the exterior of the body of a drowned person are usually very characteristic. The skin is usually pale, cold, and damp. The paleness at times is marked, and often, in the early stages, is

[4] Voisin, Note sur l'Organization du Service des Secours Publics dans le Département de la Seine, Paris, 1878.

[5] Laub, Hospitals Tidende, Kopenhaven, 1868.

[6] Amer. Jour. Med. Sci., 1853, p. 348. See also § 131, *ante*.

[7] See Hofmann, Ger. Med., p. 585.

[8] Brouardel and Logé, Recherches Experim. sur la Mort par Submersion Brusque, Arch. de Physiol., 1889, 1, 2, and 3.

associated with reddened areas of cadaveric discoloration. The coldness of the skin is striking, but is not characteristic, as it is found in all bodies that have lain in the water. The hairs and papillæ of the skin stand out in the characteristic manner of "goose flesh" (*cutis anserina*) very constantly. On the other hand, it is not characteristic of drowning, as it is found, also, in other forms of death. Similarly there may be shriveling of the skin of the penis, scrotum, breasts, and nipples under the same conditions as the production of *cutis anserina.* The thick skin of the palms of the hands and the soles of the feet, after remaining for a certain length of time in the water, becomes wrinkled like the skin of a washerwoman's hand. This wrinkling is more marked in proportion to the thickness of the skin, being more pronounced in the working classes than in the delicate-skinned people. It may follow not merely submersion in water, but also wrapping the parts in wet clothes. It becomes more and more marked until the skin begins to separate from the deeper tissues.

370. Froth at nostrils.— The appearance of foam at the nostrils has been considered of marked value in the diagnosis of drowning, the water and mucus becoming mixed with air during the final respirations. Although found to a certain extent in other modes of suffocation, such as hanging and epilepsy and extensive bronchitis, it does not, in these cases, present the same characteristics as in death by drowning. In these other cases the quantity of froth is very small, often bloody, and, being composed entirely of mucus mixed with air, is viscid, in larger bubbles, and closely adherent to the tissues; while the watery froth of the drowned is, on the contrary, abundant, foamy, and made up of a larger number of small bubbles, which soon disappear on exposure to the air. The absence of froth cannot be assigned as proof that the person did not die of drowning. In certain cases it is not formed; as, in the cases where the person has remained completely immersed in the water, or has died without a struggle. If, on the contrary, the person has struggled considerably and has come to the surface, and so breathed both air and water during the process, the quantity of foam may be considerable. Again, from its very nature this sign is evanescent. If the body has lain for several days in the water, if it has been removed from the water with the head down, or if the inspection is not made soon after the removal of the body from the water, the froth that may have existed will no longer be found.

371. Abrasions of the hands.— Abrasions of the hands, mud or

sand under the finger nails, and foreign bodies grasped in the hands are at times found. In the struggles made by a drowning person to save himself, he clutches wildly at every object in the water. Hence, if the water is not very deep, or the drowning person is near the bank, the fingers will most probably bear the marks of the sand or gravel, and weeds or sticks may remain firmly grasped in the hands. Unless the substances thus found are peculiar to the water, it may be impossible to exclude their having come from a struggle on the bank; or, indeed, they may have been produced after death by the hands striking against the bottom of the stream. The absence of such signs is not at all significant.

372. Internal appearances, in general.— The internal appearances of asphyxia are not characteristically present, as in suffocation, though they may be found. The blood is, however, even more fluid than in most other cases of suffocation, and in place of congestion of the organs anemia is frequently present, being especially marked in the liver. This great fluidity of the blood accounts for the great bleeding that follows wounds on the drowned, the rapid transudation, and the imbibition.

373. Condition of the lungs.— The condition of the lungs is very significant. Immediately after removal from the water, water may be poured out of the lungs by lowering the head of the victim and compressing the chest; but frequently a very large portion of the water has been removed before the body comes to the physician for examination, and, even if the lungs do contain water, it is significant only of the presence of the body in the water after death. On opening the chest the lungs are found to be bloated, and not to collapse as usual. The surface of the lungs at times shows a diffuse bluish mottling, due to the imbibition of the blood and water. Between the air vesicles may be found small areas of emphysema where, with the air, water is also mixed. If the body has been long enough in the water the pleural cavities may also contain water by transudation. The air passages, on opening the lungs, may show the presence of the water, and also of the watery froth similar to that found on the lips and nose. If the fluid contained in the lungs is of a peculiar character, it may be identified with that of the liquid from which the body was removed. A certain small quantity of water may enter the lungs when the body is submerged post mortem, but the alveoli will not be so completely filled as in the cases of drowning.

374. Water in the stomach.— The presence of water in the stomach is of even more significance than the presence of water in the

lungs in the diagnosis of death from drowning. For while water may enter the lungs after death, practically none enters the stomach except during life, or in a very late period of decomposition. During the first and second stages of drowning the person usually swallows more or less of the fluid in which he is submerged. Naturally, the quantity of water in the stomach varies a great deal. If the quantity is very slight it is not significant; and, on the other hand, if the person has drank freely just before submersion, the water cannot be considered; but if the character of the water or fluid found in the stomach is like that of the medium in which the person is found, and of such a character that the person would not have drank it, the evidence from the fluid in the stomach is of considerable value. This is especially true if the fluid contains sand, gravel, parts of water plants, etc. If the person be found lying in a morass, a stagnant pool, or a privy well, there will, of course, be no difficulty in recognizing liquids from such places, if found in the stomach. If such fluid has penetrated as far as the duodenum or small intestine, the drowning is practically proved.

375. Marks of violence.— Independent of the changes due to drowning, there are often found on the body marks of violence produced by different means, as in the cases where death has been due to some other cause, and the body later thrown into the water; or in the cases where, after death from drowning, the body has been caught in the wheels of a steamer, for instance, and been more or less mangled. So, also, death may have been due to some natural cause, such as apoplexy, and the person have fallen into the water immediately after the apoplectic stroke. Here, for instance, we should find, perhaps, a hemorrhage on the surface of the brain, which might be attributed to violence. So, too, the person, in diving, may have struck a rock or some obstacle which has inflicted wounds of a very suspicious character. Sometimes a mark similar to that of hanging is made by the collar or fastening of the dress, made tense by the imbibition of water. A case is recorded[9] in which the body of the man who had voluntarily drowned himself was drawn out of the water by a rope around his neck for that purpose. This was done probably half an hour after death. The thyroid cartilage was fractured, and there was a distinct ecchymosis over it, made by the rope. A similar mark might be expected where a man has tied a stone around his neck in order to insure his drowning. These associated lesions form a very important part of the post-mortem examination, for on them, to a

[9] Henke's Zeitschr., 1844, H. 1.

large extent, depends the distinction between ante-mortem and post-mortem submersion, and between accidental, suicidal, and homicidal drowning.

376. Ante-mortem versus post-mortem violence.—The question as to whether these associated lesions have been inflicted before or after death becomes a still more difficult one to answer than in the cases where the bodies have not been in the water.[10] In the latter class of cases it is possible to estimate the probabilities as to ante-mortem or post-mortem violence from the conditions of the body and the surroundings, the quantity of bleeding, and the infiltration of the tissues in the vicinity of the injury; but if the body has been in the water, we have no such help. So, too, the blood clots have probably been washed from the surface of the wound. Even the gaping of the edges of the wound is usually obscured by the swelling of the tissues, due to imbibition of the water. In the subcutaneous wounds we are but little better off, for there is a marked diffusion of the blood through the tissues of the drowned, from the great fluidity of the blood. If there are any signs of vital reaction, healing, or suppuration, of course the diagnosis is as clear as in the cases where the body has not been in the water. On the other hand, we see a much larger number of cases with post-mortem destruction of tissue, due to the depredations of fish and aquatic animals, if the body remains submerged, and of rats, birds, etc., if the body is exposed to the air; and these lesions produced by animals may be very difficult to interpret.

Hofmann describes[11] the case of a child ten or twelve years of age whose body was found in a macerated condition. In both temporal regions were several slit-like openings 0.5 to 1.5 cm. long, down to the periosteum, out of which hung what appeared to be cords 29 centimeters long. The skull was uninjured, and there were no other signs of violence; and yet these wounds simulated stab or cut wounds very closely. The interpretation was long in doubt till a similar condition was found in another decomposed body, that was explained as being the work of birds. The cord-like structure hanging from the wound turned out to be a bit of pericranium, to which a macerated reed had become twisted.

377. Submersion, ante-mortem versus post-mortem.—The question as to whether the submersion has taken place before or after death, so far as the medical evidence goes, is fairly satisfactory. The dis-

[10] See §§ 242 *et seq.*, *ante*, for distinction between ante-mortem and post-mortem wounds in general.

[11] Hofmann, Ger. Med., p. 597.

tention of the lungs (in the absence of other causes), the presence of water in the alveoli of the lungs, the profuse fine froth in the respiratory passages, and the presence in the stomach, in considerable quantities (200 c.c. or more), of the fluid in which the person has been submerged, are characteristic of death by drowning. The absence of all these signs, even if all the external signs were present, including a small quantity of froth at the nostrils, and the *cutis anserina,* would point towards submersion after death; but as all of the signs may fail it is not justifiable to say, even if these signs are not found, that the body was thrown into the water after death. Before that is done some sufficient cause of death should be shown, which evidently existed before the body was thrown into the water. Here, in addition to the natural causes of death, there are some death-producing injuries, resulting from violence, that can, with the greatest of probability, be said to have been received before the body was submerged; such, for instance, as stab wounds, incised wounds of the neck, gunshot wounds, etc.

The presence of water and foreign bodies in the middle ear has been shown by Hnevkovsky[12] to be of very little significance in determining whether the body was submerged before or after death. In about one third of the cases where he submerged bodies after death in different liquids, he found that the liquid penetrated into the middle ear. He made his experiments on twenty-eight cadavers of infants and seventeen heads of adults. He used solutions containing starch, powdered lycopodium, or boiled muscle, and thirteen of these forty-five showed penetration of the liquid into the middle ear.

378. Accident, homicide, and suicide.— The distinction between accidental, homicidal, and suicidal deaths by drowning depends largely upon circumstantial, rather than medical, evidence. Accidental drowning is pointed to in the cases where natural forms of death are probable: where the person was intoxicated, subject to epilepsy, or known to have heart disease, or where the lesions of other sudden natural deaths are found; also in the more purely circumstantial evidence of the body being naked, or clad in a bathing suit.

Suicidal drowning is far more frequent in adults than homicidal drowning. It is often suggested by weights in the pockets of the victim, or tied to his feet, or neck, or other part of the body. It may be associated with evidence of other attempts at suicide, which are to be

[12] Hnevkovsky, Wiener Med. Blätter, 1883, No. 26; and Arch. d'Anthropol. Criminelle, Sept., 1887.

distinguished from those of homicide by the same characteristics as the wounds in general.[13]

Homicidal drowning is found more often in infants than in adults. In adults there would be marks of great violence, as in all cases of homicide where the murderer must come in close contact with his victim. If the body of water is shallow, and there is no evidence of accident, the chances are that the person's head was held under water by force rather than that he chose such a small body of water for committing suicide. The evidence of a struggle on the bank of the body of water, also, would point to homicide. If the person's hands are tied the same questions arise as where the hands are tied in cases of hanging.[14] If both hands are tightly tied the fact points to homicide rather than to suicide though a great deal will depend on the violence with which the hands have been tied, after allowing for the contraction of the rope as it becomes wet with the water.

379. Decomposition; time of floating.— The time at which the body of a drowned person will float or rise again to the surface appears to be the subject of considerable variation. It depends upon the rapidity of access of decomposition; and therefore the body rises sooner in summer than in winter. It also depends upon the density of the water (whether it is fresh or salt), and upon the proportion of the different tissues of the body,—the fat being distinctly lighter, the bones distinctly heavier, than water. Hence, the bodies of women and children, in whom there is more fatty tissue, as a rule, will rise sooner than those of men. The quantity of gas in the lungs and the intestines at the time of submersion will also influence the time of floating. Then, too, the body may be held down by roots, sea weeds, etc., or by weights attached to the body, so that it will not rise at all. Aubert, however,[15] describes a case of a body wound with lead pipe, which floated on the eleventh day. The time at which the body floats is (according to Hofmann) on the second or third day in summer; exceptionally, after two or three hours. In winter it may be weeks or months before the body rises, depending largely upon the temperature of the water.

In the following case great attention was given to the question as to when the body might float:

"*Voltan and Adams* v. *The National Loan Fund Life Assurance Company.*

"The action was brought by the plaintiffs, as assignees of this pol-

[13] For distinction between accidental, suicidal, and homicidal wounds, see § 236, *ante.*

[14] See § 363, *ante.*

[15] Aubert, cited by Hofmann, Ger. Med., p. 599.

icy, to recover on a policy of insurance issued by the defendants upon the life of one Conrad Shoemaker. The insurance was for $10,000, and the policy was issued on the 15th of May, 1850. The premium on the policy was payable quarterly, in advance.

"On the 23d of August, 1850, Shoemaker paid the premium for the quarter ending on the 15th of November, 1850. On the 4th of September, 1850, the plaintiffs alleged that Shoemaker was drowned while on a fishing excursion with one Ottman, the German, in the waters of the bay of New York, about opposite to Hoboken, and nearest to the New Jersey shore. The theory of the defense substantially was, that Voltan, Martin, and Shoemaker (Germans) had entered into a conspiracy to defraud the insurance company, by causing an insurance to be effected for a large amount on the life of Shoemaker, and subsequently secreting and disposing of him.

"To obtain a recovery, it was, of course, necessary that the plaintiffs should satisfy the jury of the death of Shoemaker. This they attempted to do—first, by the testimony of Ottman, who swore to the circumstances of his drowning, and of the time and place, which was on the 4th of September, 1850, about dusk, in the Hudson river, opposite Hoboken, and near midway of the river; second, by showing that a body found floating on the river near Jersey City, on the 7th of September, 1850, was the body of Shoemaker.

"This body was examined by the coroner of Jersey City, soon after being discovered. The skin was somewhat bleached, and the face disfigured: a part of the lips being eaten off by crabs, lobsters, or fish of some kind. After examination, it was interred by direction of the coroner.

"It was not attempted to identify this as the body of Shoemaker, except from some of the clothes found on it, and particularly the handkerchief on the neck. The handkerchief on the body was the half of a black silk one, with stripes, and cut from its mate diagonally. It was shown by a witness that Voltan, a short period before the alleged drowning, had purchased a handkerchief for his son, and, at the suggestion of Voltan's daughter, it was cut in two, and half of it given to Shoemaker, after being hemmed by her; the other half to the son. The part retained by the son and the part found on the neck of the body were exhibited in court, and found to match in color and stripes, and when laid together, formed a square; and, although cut across the stripes, matched in the run and character of the stripes. The pantaloons were also shown to be of the same general character as those worn by Shoemaker, about the time of his alleged death.

"To rebut the presumption that this was the body of Shoemaker, a number of witness were sworn on the part of the defense, with the view of showing that, as a general rule, bodies will not rise and float, even when the water is of the temperature that it is in the month of September, under from six to ten days. As Shoemaker was alleged to have been drowned on the 4th of September, and the body was found floating on the 7th of September, three days afterwards, if it were universally true that bodies do not float until decomposition takes place, in the waters of the Hudson, under from six to ten days, then this could not be the body of Shoemaker.

"The first witness sworn on the subject was Dr. Barent P. Staats. He testified that he had had occasion, in the course of his professional reading, to examine the subject as to how long a body will remain in the water before rising and floating. That it depends on the time of year, and the temperature of the water, and the size and make of the man. When the temperature is 65°, he did not think any body would rise in from less than seven to ten days. On his cross-examination, he said he did not know that he could point out any book that he had consulted.

"Dr. Benj. Budd was the next witness called. He testified that he was assistant-coroner in New York; has had occasion to see many drowned bodies,—some one hundred and fifty. Never knew a body to rise in less than six days, unless some mechanical means were used to raise it. Should judge the body found at Jersey City to have been in the water from ten to twenty days. Has never known a body to be in the water less than seven days that was mutilated by fishes. Bodies that have been hooked up in three, four, or five days, have not that peculiar bleached appearance as those present that come up from seven to ten days. The body will not rise until decomposition has commenced. He is twenty-five years of age, and has only studied the book of experience.

"Dr. Seth Geer was then called. He testified that he was coroner in New York for eighteen months, during which time he had examined between three and four hundred drowned bodies. The general rule as to the rising of drowned bodies in the harbor of New York, is from eight to ten days. In his judgment, from the description given, the body found at Jersey City had been in the water two or three weeks. Never knew a body that had been in the water but three days mutilated by fishes. The hotter the water, the sooner the body would bleach.

"Andrew Blakeley was then called. He testified that he was dep-

uty coroner in New York a little over two years, during which time he examined rising two hundred and fifty drowned bodies. Drowned bodies would rise in the summer months on an average of from six to ten days, as he found out by experience. He did not remember any case of rising when the body had been in the water but three days. He never saw a drowned body that had lain in the water but three days eaten by fishes. On his cross-examination he stated that he had never read any medical book on the subject, nor did he know, except from testimony taken as coroner, of a body lying under water seven days. It takes a body from six to eight or ten days to get bleached. He means by bleaching, a soaking of the body,—a general softening and whitening of the body.

"Henry C. Van Wie was called on the part of the plaintiffs. He testified that he was coroner of the county of Albany for four years. Has held a good many inquests on drowned bodies. Has known two or three instances where the bodies have risen in three or four days. In warm or sultry weather they will rise in from three to four days. They will bleach out directly in warm weather. They will be mutilated by fishes directly after decomposition takes place. Remembers an instance of holding an inquest on a body that drifted ashore, and had been drowned four, five, or six days. (This witness related the startling fact of holding, in one season, inquests on fifteen infants under three months old, found floating in cigar boxes near the city of Albany,—cases, doubtless, of infanticide.)

"Henry C. Allen, called for the plaintiffs. He testified that he had been coroner of Albany county for twelve or fourteen years. He never could make up his mind as to any definite time that a body would remain under water. He knew an instance of a girl of fourteen years of age, who was drowned on Friday, at 12 o'clock, and floated on Sunday at 12 o'clock. She was drowned at Greenbush Ferry. Had known instances of bodies rising in five or six days; sometimes sooner. Knew of one man, by the name of Moreton, who floated on the fourth or fifth day. The girl spoken of had turned a dark, livid color. Females float sooner than males.

"George E. Cutler, called by plaintiffs. He testified that he was coroner of Jersey City. He knew of the case of a young man who was drowned on Sunday, about 7 or 8 o'clock in the morning, and on Tuesday or Wednesday succeeding, about 11 o'clock, he was found floating about two miles from the place where he was drowned. He knew of a female by the name of Smith, was seen alive on Wednesday evening, about 7 o'clock; on Wednesday, about 4 o'clock, P. M.,

he was called to view the body floating. A person of temperate habits will bleach very quick; those who have been inveterate drinkers never will bleach.

"John Osborn, called by plaintiffs. He testified that he was coroner of Albany county three years. Had occasion frequently to reclaim drowned bodies. Had known bodies to come up in two days, others not in several months. Had a case of an Irish girl. She had been drowned some two or three days; it might have been four. Had another case of a man, McCarregan, an Irish auctioneer, who rose in four or five days.

"Silas M. Benton, called for plaintiffs. He testified that he was acting coroner in 1847, 1848, and 1849, in New Haven, Conn. He knew a case of a person, whom he saw on Friday, was missed on Saturday, and found floating in the water on Sunday. The man was a German, and a baker by trade.

"The verdict of the jury was in favor of the plaintiffs."[16]

The same question was largely discussed on the trial of Spencer Cowper, for the murder of Sarah Stout.[17]

In two cases mentioned by Dr. Taylor,[18] bodies floated in a much shorter time. In one a woman, who was seen on the banks of a river at 11:30 in the evening, was found drowned at 8 o'clock in the morning. The body was floating on the water, with the face downwards. In another, in the month of December, a factory girl fell into a river while walking along the bank in the evening. The body was found floating on the surface of the water the following morning. The bodies in these cases were clothed, and this, it is supposed, may have rendered them more buoyant.

380. Putrefaction in water-soaked bodies.—The process of putrefaction of bodies lying in the water, as usually described, is that, while the body remains in the water, putrefaction goes on more slowly than in cases where the body is exposed to the air; but, after the body is removed from the water, decomposition goes on much more rapidly than in other cases, and shows first in the head and neck. There is a rapid and marked swelling of the tissues, most evident in the face, which, in a few hours, becomes so bloated that it can scarcely be recognized. The tissues of the scrotum, too, increase three or four times in volume in as many hours after the removal of the body from the water, where it has lain for several days. Vibert states[19] that if a person is

[16] Am. Journ. Med. Sci., July, 1853, p. 263.

[17] Burke's Trials of the Aristocracy, 284.

[18] Med. Jur., 5th ed., p. 696.

[19] Vibert, Précis de Méd. Lég., p. 158.

drowned while bathing, or, at least, while wearing bathing trunks, that within three or four hours after the admission of the body to the morgue it is impossible to remove the trunks from the body except by cutting them off. This enormous swelling seems to be due to the development of gases in the subcutaneous tissues, with emphysema. This gas is often inflammable.

381. **Course of maceration in the water.**— The maceration of the skin, due to the water, shows itself in the falling out of the hair; first on the vertex, giving the appearance of baldness; but the scalp shows the follicles from which the hair has fallen, which look like pinholes in the skin. The maceration of the skin on the hands and feet also is characteristic. Vibert gives the following table as showing the rate of development of the maceration of the skin of the hands in summer on a moderately warm day. After five or six hours the skin is pale and in ridges on the fingers. In three to four days this pale, folded condition of the skin has extended to the palms of the hands. In six to eight days the skin appears much thicker, and white as chalk. In two weeks the skin has commenced to separate from the deeper tissues. In winter the changes are much less rapid.

The progressive changes that take place in the body if it is left in the water to follow its own course may be described roughly as follows: After the lapse of three to ten days the development of gas becomes so great as to cause the body to float; and in the course of the second week the skin becomes emphysematous, the cuticle loose, and the parts of the body that are above water acquire tints of green, blue, and brown, and become dry and parchment-like. If the body has rolled about in the water, as will be the case where the current is rapid, these changes will be more gradual. If the weather be cool, few changes worthy of note take place during the next six or seven weeks. But about the third or fourth month the skin has become so much eroded in various places, but especially over the inguinal region, that perforations will be found, leading to the cavities of the body. In consequence the gases generated by decomposition escape, and the body sinks again. The skin and the muscular tissue become transformed into incrustations of adipocere by the uniting of the fat with the calcium and magnesium salts. The bones are so loosely held together that portions of the skeleton are apt to be separated.

Littlejohn considers[20] these classical descriptions of these processes of decomposition in water as following the conditions in fresh

[20] Littlejohn, Edinb. Med. Journ., 1903, N. S., Vol. XIII., p. 123.

water. He described the conditions found in salt water as being essentially different in three points: 1. The exposed soft parts are very rapidly destroyed, not by putrefaction, but by fish and crabs. The latter, especially, seem to cause a great deal of destruction. He finds the whole of the bones of the face to be picked as clean as anatomical specimens in the course of a few days, while the protected parts of the body remain in the early stages of decomposition. 2. The slow putrefaction of the body, due to the facts that the body lies in purer water, that the salt tends to preserve the tissues, and that there is a more rapid production of adipocere. 3. The great frequency of injuries, due to the beating of the body against the rocks or against a stony bottom by the waves. The wounds so produced, when fresh, even though post-mortem, show a pink color, possibly due to the action of the salt of the water on the tissues. The skin also is often bright red or pink. He cites several cases of submersion for equal lengths of time in fresh and salt water that have come under his observation, showing the entire difference in the appearance of the two. The case with the longest submersion in salt water that he describes with a known period of submersion is that of a suicide who drowned himself in December, and whose body was recovered in May,—a period of over five months. The bones of the face were bare, the scalp turned to adipocere. The rest of the body was remarkably fresh. The skin was pale green and intact, except at the site of a hole in the clothes over the leg, where the tissues had been eaten (probably by crabs) down to the bone and muscle. There was no putrefaction or emphysema, and the scrotum was not distended. The skin of the hands and feet was detachable as a cast. On the pleura and in the tissue of the lungs there were deposits of numerous clear crystals, some as large as a cherry. The stomach was in as good a state of preservation as in bodies that have been dead but a few days. The intestines were normal in appearance, the liver was slightly tinged with green, and the flesh of the thighs appeared to be undergoing transformation into adipocere. Before opening the abdomen there was a slight odor, which was much more marked on opening the abdomen; but the odor was not very offensive. The gas that escaped was not inflammable.

These findings seem to be characteristic of the condition that may be expected in bodies that have been submerged in salt rather than in fresh water. Hoenig reports[21] the recovery, after forty-one years,

[21] Hoenig, Berliner klin. Wochenschr., 1890, p. 1,212.

of several well-preserved bodies that had been thrown into a salt well at Saltzburg.

382. Time in the water.— The time which a body has lain in the water cannot be determined with any precision after the process of putrefaction has once commenced.[22] The rapidity and character of the changes which it undergoes vary according to the sex, age, habit of body, temperature of the water and the air, depth of the water, quality of the water (whether fresh or salt, stagnant or running), the attacks of fish, birds and beasts of prey, and finally, whether the body is clothed or not. Dévergie gives the following table of the sequence of events in a cadaver left in the water all one winter:[23]

3 to 5 days: Cooling and freezing of the body, skin becomes pale.

4 to 8 days: Joints supple, skin natural color, palms of hands pale.

8 to 12 days: Flaccidity of all parts, back of hands pale, face blanched, and of a different color from the rest of the body.

2 weeks: Face slightly puffed, red in places, greenish tinge over sternum, epidermis of hands and feet white, and beginning to pucker.

1 month: Face reddish brown, eyelids and lips green; reddish brown patch surrounded by green on the anterior surface of the stomach; skin of palms and soles white, thick, folded.

2 months: Face brown, swollen, hair loose; epidermis of hands and feet in large part detached, nails still adherent.

2½ months: Epidermis and nails of hands detached, nails of feet still attached, red discoloration of the subcutaneous tissues of the neck and parts around the trachea and thorax, partial saponification of the cheeks and chin, and superficially of the nipples, groins, and anterior parts of the thighs.

3½ months: Destruction of part of the hairy scalp, eyelids, and nose, partially of the face, upper part of the neck, and thighs, destruction of the skin on various parts of the body, epidermis and nails of the hands and feet completely gone.

4½ months: Almost complete saponification of the fatty parts of the face, neck, groins, anterior part of the thighs, calcareous deposits on thighs, beginning saponification of the anterior part of the brain, calvarium denuded and beginning to be very brittle; opaque condition of most of the hairy skin, associated with its destruction.

In summer the changes would be much more rapid. Dévergie esti-

[22] Recently Revensdorf has undertaken to determine the time that has elapsed between death and the finding of the body. For his results, see § 433, *post*.

[23] Dévergie, Méd. Lég., 3d éd., Vol. II., p. 520.

mated that the changes of the first month, as described, would take place in the first five to eight hours; those of the second month in the first day; those of the third month in the second day; and those of the fourth month in the fourth day.

CHAPTER XI.

SUDDEN DEATHS FROM NATURAL CAUSES.

383. Definition.— There are a certain number of deaths the sudden and unexpected occurrence of which allows of the interpretation that the death has come from some violent means, rather than from a natural cause. If the conditions under which these deaths take place are suspicious, they may lead to medico-legal investigation to determine the cause of death. In a great number of instances the history of the case, or the examination of the body post-mortem, will disclose an evident cause of death: as in apoplexy, pulmonary embolism, or subcutaneous wounds. In other cases the examination reveals conditions which allow of the interpretation that death has been due to either a natural or a violent cause, for the lesions found are not characteristic of anything more than a general type of death. Such, for instance, are the deaths from epilepsy, which so closely simulate those from suffocation in their post-mortem findings. Again, the examination may reveal nothing which will point to the cause of death: as in the cases of death from fright, or shock, or poisoning, when no trace of the poison can be found.[1] Brouardel has given[2] a masterly description of the causes of sudden and unexpected death occurring from natural causes, and on his work, largely, the following two chapters are based.

Sudden death from a natural cause is the rapid and unexpected

[1] Brouardel says that 10 per cent of the cases where no adequate cause is found for death are unsatisfactory because of the advancement of putrefaction before the examination is made.

[2] Brouardel, La Mort et la Mort Subite, Paris, 1895.

fatal termination of an acute or chronic malady which has developed in latent form. This latent form of disease is especially common in infants, in old age, and in people addicted to the use of alcohol. In these classes the diseases in which we ordinarily find distinct symptoms from near the time of onset may continue until a few hours before death with only very indistinct or no symptoms. Brouardel describes the causes according to the site of the lesion.

384. Lesions of the circulatory system.— When the cause of death is in the circulatory system the lesion may be in the heart muscle itself, which is overloaded with fat, as in very obese persons, or the muscles may be degenerated by fatty or fibrous changes. These degenerations of the heart muscle may lead to death, not merely by the inability of the heart to respond when it is called upon to do extra work, as in cases of exertion or violent emotion, but even during rest. They tend, also, to lead to the ruptures of the heart, which occur more frequently in the left side of the heart than in the right, unlike the traumatic ruptures of the heart, which occur more frequently in the right side. Closely associated with these lesions of the heart muscle are the lesions of the coronary arteries of the heart, on which the nutrition of the heart muscle depends. Lesions of the pericardium, leading to adhesions of its visceral to its parietal layers, similarly may produce sudden death. Endocardial lesions, whether the valves of the heart be diseased in some chronic process or in some acute ulcerative or vegetative condition, and aneurysms of the valves, lead to similar fatalities. New growths of the heart, though rare, may have the same effect. In angina pectoris there is no constant or positive lesion to be found to account for the result.

Lesions in the arteries are an important factor in the cause of sudden deaths. There may be either a congenital lesion of the aorta or the large arteries may have developed upon them weak spots, leading to aneurysms or to rupture of the vessel. The arteriosclerosis of the vessels is a common factor. In the vessels of the brain it leads to one form of apoplexy without extravasation of blood; in the kidneys it is associated with the chronic nephritis cases. This change in the vessel walls leads to rupture, too, of the blood vessels, which, in the arteries of the brain and of the heart, is especially dangerous to life.

Lesions of the veins are significant in three general types of cases: by the rupture of the large, venous trunks that have become weakened by varices; by the formation of thrombi in the vessels, from which portions are broken off to lodge in the heart, lungs, or, more

rarely, the brain, and cause sudden interruption of the function of the organ in which the embolus lodges. These thrombi are peculiarly liable to form in the veins that are the seat of varices, during pregnancy, associated with fibroids of the uterus, and ovarian cysts, in primary and secondary anemias in mastoid disease, in typhoid fever, in furuncles of the face and lips, in prostatic inflammation after gonorrhea, after fractures and dislocations. In this connection Brouardel cites an extremely interesting case of double accidental death of two old people who were alone together in their house. The woman, in going to the cellar for wine, had evidently fallen and fractured her neck; the husband, who was seated at the table at the time of the accident, had evidently heard her cry, and the sudden rising from his chair, possibly associated with the excitement, had broken a bit from a prostatic thrombus, and the embolus had lodged in the lungs, causing instant death. A third way in which the examination of the veins may lead to the discovery of the cause of death is in the cases of air emboli in the vein, such as may follow uterine manipulations during or just after pregnancy; in the return to normal pressure of men who have been working in compressed air, as in the case of divers (caisson disease); and in the case of infection by gas-producing bacilli.

Lesions of the small vessels—capillaries and arterioles—lead to the capillary hemorrhages, which are especially significant in connection with apoplexy. Here, too, should be noted the instances of meningeal hemorrhage, the cases of pachymeningitis, which, when found, even in the absence of alcoholism, and insanity (the usual causes) do not prove violence. In the capillaries, also, we find the small septic emboli and the fat emboli, which account for some of the sudden deaths. There are also certain troubles connected with the distribution of the blood to the various parts of the body, which are dependent upon the contraction and dilatation of the vessels of the various regions, where local congestion causes distant anemia: as, after removal of fluid from the abdominal cavity, from the pleura, or after emptying a distended bladder, or after merely rising suddenly after a long illness, or after a distinct hemorrhage. In these cases the blood pressure has been so decreased in some special region that, before its appropriate redistribution can take place, there has been a fatal anemia of some of the other organs of the body.

385. **Lesions of the central nervous system.**— When the cause of death is in the central nervous system, we may find lesions in the coverings of the brain, in the brain itself, or in the spinal cord. As an

example of the sudden development of meningitis, Vibert gives the instance of a public woman, some thirty years of age, who was picked up by a man and went to a hotel to spend the night with him. He left the next morning, and in the afternoon the woman was found in the room, unconscious. She was taken to the hospital, and died there thirty-six hours later, never having regained consciousness. The autopsy showed no evidence of violence as cause of the death, but a layer of pus several millimeters thick, covering the brain, a quantity which could not have developed since the time when the man and the woman met, even if there had been any evidence of a cause for a traumatic meningitis. The sudden development of a fatal termination in abscess of the brain or in tumor of the brain, after a long latent period, is characteristic of the symptoms of these troubles. Similar development may occur in acromegaly. So, too, a lesion of the spinal cord, whether inflammatory or a new growth, not infrequently develops fatal symptoms on very short notice, especially if the lesion is in the cervical region. Epilepsy is a disease of the central nervous system, apparently without any characteristic lesions. Deaths primarily due to epilepsy, while they are certainly not common, may possibly occur. In such cases the only signs of the cause of death would be in the effect of the epileptic seizure: the punctate hemorrhages in the skin of the face, neck, and shoulders, the injected conjunctivæ, the lacerations in the tongue, due to the biting, and the foam in the bronchi and trachea,—practically the same lesions as are found in the deaths from strangulation. The differentiation is extremely difficult by a medical examination, and depends more often upon circumstantial evidence. The cases where hysteria leads to convulsions and death are less frequent than those of epilepsy, and here, again, there are no lesions characteristic of the disease.

Classed under lesions of the central nervous system must also be considered the cases of death from shock and inhibition; though, in these cases, there are no lesions to show the cause of death or to distinguish between natural or violent means. Here, as cases of natural death from inhibition, are the instances where death follows a strong emotion. Templemann[3] describes the death of a man ten minutes after a violent scene with his drunken son. No blows were struck on either side, and there was no lesion found to account for the death. And such cases are far from rare. Francis describes[4] the case of a very sensitive man, who had a great fear of snakes. He

[3] Templemann, Edinburgh Med. Journ., 1893.

[4] Francis, Med. Press and Circular, 1883.

was roused one night by feeling something crawling across his legs. The man went into collapse, and died inside of six hours; and yet it was only a harmless lizard which had crawled across him. Similar experiences have occurred in the hands of surgeons, where the simplest of operations have been followed by altogether unprovoked deaths. Nussbaum[5] cites the case of a surgeon who was examining the bladder of a woman, with a sound, when she closed her eyes and forthwith died. Cazenave[6] reports a similar case of a surgeon who passed a sound upon a man, and inside of a minute the man was dead. To be distinguished from these deaths, for which we cannot account except by calling them reflex inhibitions of the heart or lungs by the slight and usually harmless external stimulation, are the instances of similar inhibition following blows. Such blows most frequently are those given upon the epigastrium, especially after a full meal; on the hypogastrium, on the larynx, neck, nose, mouth, and in the region of the distribution of the fifth cranial nerve. Here we may have absolutely nothing to show that violence has been used.

386. Lesions of the respiratory system.— When the cause of death is in the respiratory apparatus we may find as lesions edema of the larynx or polyp obstruction of the larynx; or, with laryngismus stridulus, causing death, we may find no lesion giving the immediate cause, and only possible rachitic lesions to point to the cause. In the trachea there may be found, in other cases, vomitus, or pus from an abscess that has ruptured into the trachea, or even a lumbricoid worm that has attempted to crawl from the intestines. The trachea may be compressed by the glands in the mediastinum, by a cancerous growth, by the thyroid or by the thymus glands. These latter two glands, even without giving symptoms of compression of the trachea, may be the cause of sudden death, as in the cases of exophthalmic goiter and of lymphatism.

In the lungs proper we very rarely, if ever, find a primary congestion as the cause of sudden death. More often we find a pneumonia, as in the aged or alcoholics, where it frequently develops without any symptoms; possibly, in other instances, a suffocating catarrh, due to hypersecretion of the bronchi; or a pulmonary phthisis, where death has come from thrombosis or from rupture of a blood vessel in a phthisical cavity. So, too, there may be a pleurisy, with effusion, which has interfered with the action of the lungs or

[5] Nussbaum, Ueber Unglücke in der Chirurgie.

[6] Cazenave, Gaz. des Hôpitaux, 1866.

of the heart. Affecting, too, this respiratory apparatus, are the ruptures of the diaphragm, which occasionally occur from natural causes.

387. Lesions of the digestive system.— When the cause of death is in the digestive apparatus we may find cases where congestive pharyngitis has been the cause of death; but as the color characteristic of the disturbance is faded before the post-mortem examination, there may be nothing whatever to show for the disease. Such cases are analogous to the instances of inhibition which have followed touching the pharynx, of which Brouardel cites several. In the œsophagus there may be a dilatation, with minute ulcerations, such as would be found in a case of irritant poisoning. In the stomach cases, those without lesions (as those due to indigestion or to dyspeptic coma) are very doubtful. Martel, however, describes one case in which indigestion seems to be the only assignable cause of death; but here the patient was a convalescent from typhoid, who had overloaded his stomach. The presence of ulcers of the stomach would suggest, in cases of sudden death, the possibility of poisoning; but the round ulcers of disease, which have run a latent course, are usually distinct in form, and in the raised edge of beginning cicatrization, or the presence of vital reaction, give evidence of their long duration, which, of course, would not be found in instances of poisoning. Brouardel cites one instance of great interest,—the case of Mme. Lerondeau, who was accused of poisoning her husband. The examination showed a trace of oxalic acid in the stomach, and the presence of several ulcers; but the further examination showed the ulcers to be round, and it was also shown that oxalic acid is produced to a greater extent than the trace found here, during the digestion of bread. Therefore, on the second trial, the case was abandoned. The round ulcers of the stomach must, of course, in each case be distinguished from the post-mortem ulcerations due to hypersecretion, and from post-mortem erosions.

In the intestine we may find ulcers of the duodenum which not rarely have run a latent course. Ulcers of the jejunum are rare, but ulcers of the ileum, due to dysentery, typhoid, tuberculosis, or cancer, are more common. Associated with these there may be intestinal hemorrhages that have led to death. Among the other intestinal causes which, at times, lead to unexpected death with obscure symptoms, are embolism of the mesenteric arteries, appendicitis, intestinal strangulation or obstruction, and even constipation.

With the liver affected we find cases of severe acute jaundice (which may be indistinguishable from acute phosphorus poisoning),

of cirrhosis of the liver, of biliary colic, of rupture of the gall bladder, or of an hydatid cyst. Rupture of the spleen may be the cause of sudden death after a malarial infection and marked enlargement of the organ. Pellereau[7] collected seventeen cases of rupture of this organ as a cause of death, the rupture being due to some slight traumatism. In one of the cases a man, running across a field, was lightly struck by a cactus branch, which he brushed against in passing. The spleen was ruptured and death followed as a consequence. Hemorrhage into the pancreas may be the cause of death; usually, however, such is interpreted as but an associate lesion to some other disturbance. In tuberculosis of the suprarenal capsules (Addison's disease), death may come on unexpectedly. In peritonitis, whether acute or chronic or due to a new growth, we may have a sudden death.

388. Constitutional diseases.— Certain infectious diseases, such as malaria in its pernicious forms, and the eruptive diseases, in their hemorrhagic forms, may develop suddenly and terminate fatally, in a most unexpected manner. So, too, certain constitutional diseases, with no characteristic lesions, such as hemophilia or diabetes, may lead to sudden deaths,—hemophilia by producing hemorrhages that are uncontrollable. Brouardel cites two cases where a tooth extraction by a dentist led to fatal results. Diabetes most frequently runs a latent course, to show itself a short while before death in the development of pneumonia, anuria, or coma.

389. Lesions of the female generative system.— The female genital organs may show lesions explanatory of sudden death in a fair number of cases. Brouardel cites several cases where mere vaginal examination with the fingers has led not merely to abortion, but also to the sudden death of the woman examined. In one of his cases the mere giving of a vaginal douche (the fourth one given) to a girl of sixteen who had a gonorrhea but had not had her hymen ruptured, produced death. The more usual cases of death, where the lesion is found in the female genital organs, are, however, the extrauterine pregnancies that rupture, or the rupture of the uterus during pregnancy, or rupture of vulvo-vaginal varices, or the syncope or thrombosis associated with labor.

390. Lesions of the urinary system.— Lesions of the kidneys are an extremely frequent cause of sudden death. Not merely does death follow in the course of the development of a latent nephritis, but the renal insufficiency may show up most unexpectedly, causing death in

[7] Pellereau, Ann. d'Hyg. Pub., 3s., VII.

the acute fevers or in toxic conditions which persons with normal kidneys would be able to overcome. Many of the drug idiosyncrasies seem to be due, or at least to be associated with, renal insufficiency. In the course of the kidney disease itself, death may come on with bronchial symptoms, developing into an acute dyspnea, with edema of the lungs; or it may follow the gastrointestinal type, with vomiting and purging, so simulating acute poisoning with some irritant drug; it may take the comatose form and simulate opium poisoning; or the convulsive form, and simulate strychnin poisoning; or it may be extremely sudden, as in the fulminating form, where death occurs in a few minutes or an hour.

CHAPTER XII.

DEATH AND SIGNS OF DEATH.

I. Apparent death versus real death.

391. Premature burial.— To the casual observer the distinction between life and death is so marked that it would seem an easy matter to tell the difference, and so it is in the majority of instances. But there are certain conditions where the distinction is not so easy. On the other hand, there is a prevalent idea that burials alive occur with alarming frequency. But, while this is true if it occurs in but a single instance, the stories of premature burial are mostly without foundation. Yet a few such authentic instances must be admitted. However, since the establishment in Europe of the mortuaries for the timely detection of this awful calamity, not a single instance has been found in those places.

392. Conditions simulating death.— The conditions that have led to the greatest doubt as to whether the person was alive or dead are: Syncope, where, during a short period, the heart action is so weak that the pulse may not be felt, the color disappears from the skin, and the breathing becomes very shallow. The condition of death may be still more closely simulated in the instances of acute alcoholism, associated with exposure to cold, where not merely is there a loss of consciousness, and absence of response to stimulation, but the body temperature has fallen from the normal to a degree generally considered incompatible with life; as in the case described by Peter,[1] where the temperature of the man reached 26° C. (79° F.) and the man recovered. So, too, in the cases of opium poisoning, where the breathing drops down to one or two a minute, the question of the existence of life becomes one of difficult determination. Simulating the condi-

[1] Peter, Gaz. Hébdom. de Méd. et de hibernation in animals, as described in Chir., 1872. Compare the condition of Bronardel's Mort et Mort Subite, p. 9.

tions of death still more are the hysterical conditions and the cases of catalepsy, where the various functions of the body are reduced to a minimum for periods of longer duration, and not only are the pulse and respiration almost imperceptible, but there is also a condition of rigidity of the entire muscular system, simulating the cadaveric rigidity. The conditions assumed by the fakirs of India, where they seal themselves in a tomb for several weeks, are, for the most part, tricks of jugglery; but there seem to be a few authentic instances of self-hypnotization, aided by long practice and the use of drugs.[2]

Perhaps the most authentic account of the simulation of death voluntarily is the case of Colonel Townsend, of Edinburgh,[3] who, in the presence of three persons (two physicians and a druggist), so completely inhibited his heart action and his respiration that, for over a period of half an hour, all three of them considered him to be dead. Mr. Cheyne held Colonel Townsend's pulse, Mr. Baynard held his hand over the colonel's heart, and Mr. Shrine held a mirror in front of the colonel's mouth and nose. No one of the three found any sign of life, and they were about to leave the room at the end of a half hour, thinking that the demonstration had been too successful. Then the colonel gradually began to show signs of recovery, and regained consciousness. That afternoon, however, after having made his will, the colonel did actually die. In spite of these cases it does not seem at all probable that to-day a medical practitioner could, after a careful examination, make a mistake which would lead to the burial of a live person.

II. Time of death.

393. Instant of death.— The determination of the instant of death is, however, a very different matter. Here we are confronted with the same problem as in the determination of live births. The time of death of the individual is not coincident with that of the death of all of his tissues. The eye responds to certain kinds of stimulation for a while after death of the body. Muscles respond to other stimulation. In fact, Regnardt and Loye[4] saw a judicial decapitation at Troyes where the heart beat for an hour after the head had been separated from the body. Hofmann[5] reports a similar case where

[2] Brouardel, La Mort et la Mort Subite.

[3] See Cheyne's English Malady, or a Treatise of Nervous Diseases, 5th ed., 1735, p. 307.

[4] See Brouardel, La Mort et la Mort Subite.

[5] Hofmann, Nouveaux Eléments de Méd. Lég., Paris, 1880.

the heart was beating at the time of the autopsy on the body of a man who had been hung at Pesth, remaining hung for twenty minutes, and then, on examination, being declared dead. And a similar case[6] after a hanging in Boston, where, after a hanging of twenty-five minutes, the body was considered dead, and taken down. Here, too, on opening the thorax, the right auricle was found beating. The persistence of the heart-beat after death from decapitation or from hemorrhage was also shown experimentally on dogs by Brouardel and Loye.[7] Hence, we find that even the continuation of the action of the heart, which is generally taken as the criterion of the continuation of life, is not an absolute proof that the person is still alive, any more than the beating of the heart at the time of birth is proof that the infant is viable.

394. Order of deaths.— A still more difficult problem is associated with this one; namely, that of survival. In the case of multiple deaths, this is a question on which the inheritance may depend, when a whole family is destroyed by a single accident. For instance, in a railroad accident, if the husband has his head cut off, and the wife shows no lesion at all, still, from the medical evidence, we cannot tell which of the two died first. So in a case of drowning referred to by Brouardel, where both husband and wife were drowned, and in their wills each left the heritage to the other. The question arose as to which died first. The man was seen to rise to the surface and struggle, but the woman was not seen again. The attorneys for the man held that he had lived longer, for he had come to the surface, and so obtained more air. On the other hand, the wife's attorneys held that the person who fainted at the moment of striking the water, and went directly to the bottom, would live longer than the one who evidently had not had any such inhibition. Brouardel held that it was impossible to tell which had died first; and that decision was upheld, and the estate divided accordingly.

A more complicated condition arose in the Pranzini case.[8] An assassin, entering Madame Regnault's apartments, cut her throat, severing both carotid arteries, but not injuring her spine. She fell at the side of her bed, but in her hand held the cord of the bell rope. The maid had evidently heard the bell of her mistress, and put on her clothing, when she had her throat cut, and her spinal cord severed. Madame Regnault's daughter likewise had been killed, her head being practically cut off, only a few fibers of tissue holding the head

[6] Cited by Brouardel.
[7] Cited by Brouardel.
[8] Brouardel, Ann. d'Hyg. Pub., 1887, XVIII., p. 305.

to the trunk. The inheritance depended upon the sequence of the deaths; but, though Madame Regnault must have died from hemorrhage, the servant from lesion of the spinal cord, and the daughter by decapitation, it was impossible to say which had died first. Even in cases where death is witnessed by a medical man, the exact time of death cannot be sharply defined. If a man is attacked by several murderers, each of whom, about the same time, inflicts upon him wounds that might be fatal, it is impossible to tell which of the many has been the immediate cause of death, or which man struck the fatal blow.

III. Signs of death.

395. In general.— The signs of death are not such that we can say that at a given instant the person is alive and at the next he is dead. When chemical changes are going on in the body according to physiological principles, we can say that that part of the body, at least, is not dead; but it is not practicable to test these on the instant. Only the evidence of these chemical changes as they exist in putrefaction and the allied conditions is a positive sign of death, and even these changes may be found in limited areas during life; as, in the cases of gangrene.

396. Cessation of response to stimulation.— The evidences of death are first shown in the loss of response to external stimulation of the various sense organs: the loss of sensation and the loss of consciousness. With these come the cessation of respiration and of circulation of the blood. On these, as a rule, are based the statement that life is extinct. The loss of consciousness and of sensation we recognize by the fact that the person does not respond,—can not be made to respond when we speak to him, shake him, or in any way stimulate him. It is the general test applied by the layman, but there are too many other conditions which give the same lack of response for this to be of any great value.

397. Cessation of respiration.—The cessation of respiration is tested by listening for the movements of the lungs and hearing none. As a rule, this is sufficient evidence; but, if desired, it may be confirmed by holding a mirror before the nose and mouth and noting the absence of condensation that follows when the moist, warm breath is breathed out against its surface. At times it is tested by holding a downy feather or some other light material before the nose, and noting that it is not disturbed by any current of air. Again, it has been suggested to place a vessel of water on the chest and note that there is no motion of the chest wall to cause ripples on the surface of

the water. But all of these tests are liable to misinterpretation unless they are done with great precaution.

398. Cessation of circulation.— The cessation of circulation is noted first in the disappearance of the radial pulse, and then in the absence of the heart sound on listening over the heart. If these tests do not give the desired precision, a number of other tests have been suggested. If a ligature is tied around the finger, and the circulation still exists, there appears a congestion of the finger beyond the ligature. If the finger nail be pressed, the pink color of the nail can be destroyed; but if the circulation is still going on the color promptly reappears on relaxing the pressure on the finger nail. If the web of the finger is looked through towards a strong light the web will appear pink and translucent during the time blood is circulating, but opaque after the stoppage of circulation. (diaphanous test.) If a needle is stuck into the tissue while the blood is circulating, it will tarnish; but if there is no circulation there will be no tarnishing of the needle. If a bit of fluorescein (resorcin-phthalein and sodium bicarbonate, of each one gram in eight cubic centimeters of water) be injected hypodermatically, there will be no discoloration if the circulation has stopped; but if the circulation is still active, there will be not merely a yellowish-green discoloration for some distance around the area of the injection, but the fluorescein may be identified at the distant parts of the body by immersing silk thread in the blood removed from those parts of the body, and boiling, when the threads will assume a greenish color.[9] As tests for the activity of the heart, also, it has been proposed to insert needles into the heart muscle, through the chest wall, and note whether or not they move; and to open one or more of the superficial arteries to see if they contain blood. Such tests are not always applicable, and are generally unnecessary. It has also been suggested to test the vital reaction by dropping a bit of hot sealing wax or some other substance, or even some caustic, on the skin, and noting whether or not there is an inflammatory area of reddening produced around the burn.

399. Cessation of movements of the chest.— In the last few years, too, the X-ray has added another test to this already long list. Bourgade[10] says that the X-ray pictures of the thorax in the living person show diffuse outlines of the ribs, heart, and diaphragm even in the cases when the movements are reduced to the quietest form, but

[9] Icard, La Mort Réele et la Mort Apparent, 1897.

[10] Bourgade, Comp. Rend. Soc. de Biol. de Paris, Vol. V., p. 103, 1898.

that after death the outlines of these objects, even after an exposure of over a quarter of an hour, show no movement.

400. Examination of the eye.— The examination of the eye often adds considerable to the positiveness of the diagnosis of death. Immediately after death the cornea loses its lustre, and becomes glazed. The tension and the firmness of the eyeball fall with the lowered blood pressure. The iris does not respond to the action of light, but it may, for a few hours, until local death takes place, respond to the action of atropin or eserin. If the fundus of the eye be examined with an ophthalmoscope after death it will appear pale, so that the entrance of the optic nerve is no longer visible. The arteries usually seen in the fundus cannot be identified, and the veins show interruptions in their course. Post-mortem changes of color occur early in the sclera in many cases. As these changes progress, the loss of tension in the eyeball falls to zero, the cornea sinks, and the iris becomes flaccid, and later, wrinkled.

401. External suggillation.— The color of the skin after death changes from the pink of life to a distinct pallor, though this may not be seen for some time in persons of a very ruddy complexion. Pigmentation that has existed before death does not disappear after death. As the blood settles by gravity into the dependent parts of the body, new color changes, due to this hypostasis and diffusion of the blood from the blood vessels into the surrounding tissues, take place. The dependent tissues in from three to ten hours begin to show spots of purplish or bluish discoloration, and to become edematous. The areas where pressure is exerted, as by creases in the clothing, remain pale. Tourdes claims[11] that these spots may be made to disappear if the position of the body is changed at the end of four hours; then the spots will be found in the parts that, after the change of position, become dependent. After twelve to fifteen hours the areas that at first showed hypostatic discolorations may, if the body be turned, grow pale, but they do not disappear. And after thirty hours the primary hypostatic discolorations may grow pale, but secondary spots will not be formed in other places. These hypostatic changes probably take place in all bodies, though they are less marked in the bodies of persons who have died of hemorrhage or from some other cause of depletion, as in the cases of cholera. The appearance of these spots may possibly lead to the suspicion that they have been caused by injuries before death, which have led to ecchymoses; but

[11] Tourdes, Dict. Encyclop. des Sci. Méd.

the hypostatic spots, if incised, allow of the escape of merely blood-stained serum, not fluid blood or blood clots; while, if the spot has been caused as an ecchymosis, there will be found traces of fluid blood or clots, which could not have been formed post mortem except in the veins.

402. Internal suggillation.— The same factors at work in the interior of the body produce hypostatic congestion of the various organs in the dependent parts of the body, chiefly in the lungs, brain, kidneys, and intestines.

402a. Lungs.— In the lungs it is seen very frequently. It makes its appearance, according to Orfila, within from twenty-four to thirty-six hours after death; but there is no doubt that it often arises far earlier than this, at the time that the blood in general begins to settle. In the case of bodies which have remained lying on the back, both lungs at their posterior part, or about a fourth part of the whole parenchyma, will be found of a much darker color than the rest, and on being laid open, an evident sanguineous engorgement will be seen, even when these organs are anemic. This is so striking that it may easily mislead the inexperienced, and cause them to attribute the death to apoplexy of the lungs, pneumonia, etc. This is especially apt to be the case where the blood is unusually dark, and where edema of the lungs had existed.

402b. Brain.— It is important to observe that hypostatic congestion often occurs in the brain even in cases of death by bleeding; so that a quantity of blood in the cerebral veins generally, and especially in the posterior sinuses, is no evidence against this manner of death. Whether, in case this condition does not appear soon after death, it can afterwards be made to appear by changing the position of the body, is doubtful. This common appearance of hypostatic congestion in the brain must not be mistaken for active hyperemia, as may easily be done by the inexperienced, who are thus led to attribute death to an attack of apoplexy where none existed.

402c. Kidneys and intestine.— Hypostatic congestion occurs in the kidneys and other organs of the abdomen. It is especially common in the organs which lie in the pelvis. The bluish-red color which appears on the dependent folds of the intestines may easily be mistaken for disease, whereas it is only a cadaveric phenomenon. The diagnosis, however, is easily made by drawing out the whole mass of intestine, when the arborescent appearance will be seen to occur at regular intervals. When the body has remained resting on the back, the posterior half of the kidneys becomes discolored, and in this way may easily be distinguished from a general hyperemia in this organ.

402d. Heart.— Suggillation does not occur in the heart; but as this organ exhibits more than any other the so-called polypus, a very important formation as regards medical jurisprudence, it may be conveniently noticed here. These heart polypi are merely coagulated fibrin, and are either clear and white, or colored red by the blood. It is not to be admitted that this coagulation of the blood occurs before death, as an ordinary phenomenon, although in cases of a protracted agony it may begin in this long interval between life and death. As a general rule it takes place after death, and as the body gradually grows cold. Hence, where coagulated blood is found in wounds upon a dead body, it cannot safely be concluded that the wounds were produced before death, upon the ground that "blood cannot coagulate after death." This is one of the many erroneous notions which have persisted, from the habit of treating medical jurisprudence in a merely theoretical way. Engel is probably right when he says: "I do not believe that there is any disease or manner of death after which blood does not coagulate in the dead body. Some special case where it has not occurred may be cited, but many other cases may be adduced where it has occurred after the same disease or manner of death." This coagulation of the blood must follow peculiar laws which are as yet unknown; for it not only takes place after those kinds of death of which a fluid state of the blood is characteristic,— as, after different kinds of suffocation,—but, what seems quite inexplicable, the coagulation occurs in many organs and vessels sooner than in others; not only in the heart (the right ventricle), but also in the inferior vena cava, the liver, etc. The proposition that "coagulated blood around or in a wound shows reaction during life, because no coagulation of the blood can take place after death," is, with all its consequences, erroneous.

403. Extinction of animal heat.— The extinction of animal heat after death is a gradual process, varying with the condition of the body, the media in which the body happens to lie, and the manner of death. In general fat or muscular bodies retain their warmth, *ceteris paribus,* longer than those which are lean. So, too, bodies that are in the air cool slower than those in water, and those in foul water slower than those in clear water. Naturally, those that are clothed lose their heat less rapidly than those that are uncovered. As to the manner of death, bodies of persons struck by lightning, or dying of suffocation, cool less slowly than usual; and the bodies of those who have died of microbic diseases, such as cholera, yellow fever, smallpox, etc., and, in general, those dying of acute rheuma-

tism, injuries to the central nervous system, or of abdominal disease, are liable to show a rise of temperature of several degrees after death. As a general rule, bodies have a distinctly cold surface temperature in from eight to twelve hours.

Dr. Niderkorn has made some observations of great interest on this subject. (De la Rigidité Cadavérique chez l'Homme, Paris, 1872.)[12] The following table records the average results of 135 observations of temperature in the axillæ of persons who had died from various diseases:

Temperature of body after death.	2 to 4 hours.	4 to 6 hours.	6 to 8 hours.	8 to 12 hours, or more.
Maximum.	109.4°F.	98.2°F.	95.3°F.	100.4°F.
Minimum.	89.6°F.	80.6°F.	70.5°F.	62.6°F.
Average.	96.9°F.	90.2°F.	81.7°F.	77.9°F.

Goodhardt estimates[13] the rate of cooling for the surface temperature of the body to be, during the first three hours, at the rate of three and a half degrees Fahrenheit an hour if the bodies are fat; four and a half degrees an hour if the bodies are emaciated; for the second three hours at the rate of three degrees an hour; and after that at the rate of about one degree an hour until near the temperature of the surrounding medium.

404. Condition of muscles; primary relaxation.—Immediately after death there is a relaxation of the muscles, and with this primary relaxation there comes a diminished excitability of the muscle. If not diseased before death it may still respond to the electric stimulation, but to other stimulation its response is very much decreased. With this relaxation of the skeletal muscles there is also a relaxation of the sphincters,—notably the sphincter ani,—allowing the escape of feces.

405. Cadaveric rigidity.— This state of muscular relaxation is followed by one of cadaveric rigidity,—the well known rigor mortis. This condition may be simulated by catalepsy, but there will be some evidence of life: the body temperature is normal, and, after flexion of the rigid extremities, they return to their previous position. It may also be simulated by the freezing of the body after death; but then the entire body, joints and all, will be rigid, and bending of the joints will be accompanied by the crackling sounds of breaking of ice. Moreover, raising the temperature of the body at once overcomes the frozen condition. Rigor mortis is, as a rule, present to some extent in all con-

[12] Tidy's Legal Medicine, Vol. I., p. 48.

[13] Goodhardt, Guy's Hospital Reports, 1870.

ditions after death. Hofmann[14] excepts, however, the conditions of parenchymatous degeneration of the muscle, phosphorus and mushroom poisoning. It does not appear, either, in the immature fetus after a miscarriage, and in the newborn is slight, early to appear, and of short duration. The order in which this rigidity extends over the body, or, at least, over the skeletal muscles (for, while the involuntary muscles and heart also undergo a similar rigidity, the time of their involvement is not accurately known), is not fixed, but it seems, with certain exceptions, to appear first in the neck and jaws, and then to spread to the rest of the body.

The time when this rigidity appears is generally from two to six hours after death; but Brown-Séquard has reported an instance of emaciation from typhoid fever, where the jaw became rigid fifteen minutes before the heart stopped beating, spread all over the body immediately after death, and disappeared in half an hour after death. Similar conditions have been observed in animals after the injection into them of septic material.[15] In other cases the appearance of rigidity has not come on until long after death, as in the cases where the body has been frozen immediately after death, and all of the post-mortem processes delayed indefinitely. The duration of this rigidity is usually from twenty-four to forty-eight hours, but this, too, may be cut short or much prolonged. The existence of this muscular rigidity seems to depend largely upon the strength of the muscles of the body. If the muscles are exhausted, either by physiological or abnormal work just before death, the rigidity appears early, and is of shorter duration than in the cases where the muscles are well developed and at rest. The condition of the nerve system must, however, also be taken into account, for it has been shown[16] that this rigidity may be delayed by cutting the nerves. We find practically, too, that rigor mortis comes on early in death from fever, exhaustion, old age, in deaths from lightning and sunstroke, and in poisoning by strychnin, atropin, pilocarpin and veratrin.

406. Cadaveric spasm.— To be distinguished from this cadaveric rigidity are the cases of cadaveric spasm, where, immediately following death, there occurs a spasmodic contraction of some or all of the muscles of the body, so that the position of the body immediately before death is retained after death. This seems to occur in cases where there has been a high mental tension just preceding death, and death

[14] Hofmann, Ger. Med., p. 864.
[15] Brouardel, La Mort et la Mort Subite.
[16] Beerfreund, Arch f. d. ges. Physiol., 1888.

has been immediate, as in the cases of death from lightning, gunshot wounds of the head and chest, some cases of drowning and hanging. In these we find the explanation of the cases where the dead person still holds in his hand the weapon with which he killed himself, or a bit of seaweed from the bottom of the pond where he was drowned. There is one historical case of this condition which occurred in the charge of Balaklava, in the Crimean war.[17] Captain Nolan, while riding in front of the cavalry, was struck by a Russian shell, which tore open his chest. The arm which was waving in the air at the time remained high uplifted, and he retained his seat on his horse, which wheeled round and returned. The rider gave a death shriek, and passed through the ranks in the same position and attitude before dropping from the saddle.

407. Secondary relaxation.— After the period of cadaveric rigidity there comes a period of secondary muscular relaxation. In this state, however, molecular death of the muscles has begun, and they fail to respond to any stimulation,—a certain sign of death.

408. Destruction of the body, in general.— The post-mortem chemical changes may lead to the destruction or the more or less complete preservation of the body. On the sequence of these changes depends the determination of the period of time that has elapsed between the death of the person and the examination, the possibility of identifying the body, and other significant questions. These changes may take the form of putrefaction, saponification, or mummification.

409. Rate of putrefaction.— The essential factors modifying the rate of putrefaction are the presence of putrefactive germs, and the conditions favorable for their growth: the presence of water, oxygen, a suitable temperature, and the absence of germicidal agents. During life, under all circumstances, there are present in the body a vast number of germs, many of them putrefactive, but apparently not injurious to life. In health these germs are found on the skin, in the intestinal tract, and in the respiratory passages, and it is from these points that the processes of putrefaction start after death. When the resistance of the tissues to the entrance of germs is reduced after death, they not merely destroy the tissues with which they are immediately in contact, but, entering into the blood vessels, are driven through them to the different parts of the body by the variation in pressure upon those vessels, due to the development of the gases which these germs have produced. This post-mortem circulation of fluids in the blood vessels is called a posthumous circulation, and naturally it

[17] Ogston, Lect. on Med. Juris., 375.

is facilitated in cases where the blood tends to remain fluid after death. In the newborn infant that has not breathed or taken anything into its stomach there are no germs in the interior of the body to start putrefaction, and there we find putrefaction following a different course from that in the adult, in that the decomposition starts from the skin only, and there mostly at the junction of the skin and mucous membranes, at the orifices of the body where the tissues are thinnest, the skin being very resistant to the entrance of germs. On the other hand, after post-partum sepsis, where a vast number of germs have been introduced into the body, not merely into the uterus, but frequently into the blood before death, we find an extremely rapid development of putrefaction.

409a. Air, water, temperature.— For the growth of these putrefactive germs there is necessary a certain amount of moisture, supplied either from the tissues or from the outside; for many of the germs a quantity of oxygen, likewise supplied in part from the tissues and in part from the air. Then, too, there is an optimum temperature at which the development of the germs proceeds most rapidly: a temperature somewhat below that of the body heat during life. Above or below that we have a slower decomposition. If the body is kept frozen it will not decompose; if sterilized by burning it will keep until the germs again get access to it. If, then, we have a free supply of water and air, and a slightly warm temperature, we have the conditions under which putrefaction will proceed most rapidly. If, however, there are present in the body any of the germicides or efficient antiseptics, either from ante-mortem ingestion, as in the cases of some poisonings, or from the post-mortem injection of certain embalming fluids, or even if the body be simply surrounded with antiseptics, as in the cloths used to wrap the mummies, or the presence of certain volatile antiseptics in the coffin,—if any of these conditions are present, the development of these putrefactive germs will be retarded, or even completely stopped, and the body preserved for a shorter or longer time.

409b. Environment.— In the presence of these various essential factors we see different rates of putrefaction, depending upon the environment of the body after death. A body lying freely exposed to the weather, where it gets a generous supply of oxygen and of moisture, and is kept warm by the sun, putrefies rapidly. If the body be submerged in water, and access of air prevented, putrefaction will go on, perhaps, half as rapidly. If the body is buried in the earth, and access of both air and water decreased, the process is still slower. Casper says: "At a tolerably similar average temperature, the degree

of putrefaction present in a body lying in the open air for a week or a month corresponds to that in a body after lying in the water two weeks or months, or after lying in the earth in the usual manner, for eight weeks or months." Bodies that have been buried in peat bogs have been dug up after periods of several years, showing but slight putrefactive changes. So, too, bodies found in water-closets which are so closely shut in as to prevent the access of air, even though the body lies in the mass of feces and urine, are preserved for great lengths of time. Brouardel cites one case[18] of an infant recovered from a water-closet after five or six months, with practically no putrefactive changes. Likewise the character of the soil of the cemetery has much to do with the rate of putrefaction. The open sandy and gravel soils allow free circulation of the air, and therefore a more rapid putrefaction than the heavy clays, that exclude the air. The same factors come in again in the structure of the coffin, pine boards being more porous than the heavier woods. Lead coffins, which are usually hermetically sealed, exclude external influences; but if there has been sufficient moisture in the body to allow of the progression of the putrefaction to a well marked point, the gases developed in the body may be sufficient to burst open the coffin, and then putrefaction may go on slowly, but following the same laws as in other cases. In certain cases, however, where the coffin remains sealed, the body may be found showing very slight signs of putrefaction after a long period; the surface of the body covered with drops of moisture, or possibly with more or less mold.

409c. Manner of death.— The manner of death modifies the rate of putrefaction to a great extent. In cases of exhaustion, dropsy, suffocation, drowning, or in septic conditions, the putrefaction progresses rapidly. Flabby, fat bodies, and those that have been mangled decompose quickly. In cases of hemorrhage or depletion of the body fluids putrefaction is delayed. So, too, in the cases of poisoning with antiseptic substances, such as carbolic acid, corrosive sublimate, arsenic, antimony, chlorid of zinc, etc., putrefaction may advance slowly. In persons addicted to alcohol, where the tissues seem to be more or less impregnated with it or its products, decomposition is said to go on slowly.

410. External signs of putrefaction.—The external signs of decomposition may be described, following the appearances of bodies that have been exposed since the time of death in the open air during the

[18] La Mort et la Mort Subite, p. 76.

spring or autumn months. These have been given by Casper practically as follows:—

During the first twenty-four to seventy-two hours after death, according to the condition of the body and the temperature of the environment, there appears first in the abdomen, in the right iliac fossa, a greenish discoloration. This is accompanied with the peculiar smell of putrefaction. Within the same period the cornea becomes soft and yielding under the pressure of the finger.

Within from three to five days after death, this green color spreads over all the lower part of the abdomen, including the genital organs, which, in the case of both sexes, assume rather a dirty brownish-green color. In all cases of death from suffocation, bloody, frothy discharges from the nostrils will be observed, mingled with air-bubbles. Green spots of different sizes will now appear also on other parts of the body, as on the back, on the lower extremities, on the neck, and on the sides of the chest.

Between eight and twelve days after death, the whole body presents this green appearance, which has become darker in color, and is accompanied with a stronger smell. On some parts, as on the face and neck, the color is a reddish-green, owing to the exudation of blood through the pores of the skin. Gases have now begun to form, and to swell up the body. These are generally inflammable, and a burning jet may be produced by applying a lighted taper to a small opening made in the abdomen. The color of the eyes may still be recognized, but the cornea is concave. The anus stands open. On some parts of the body, especially on the extremities, and on the neck and breast, dirty red streaks will be seen where the skin remains clear. The nails still adhere firmly to the skin.

Between fourteen and twenty days after death, a bright green and reddish-brown color spreads over the entire body. The cuticle is raised in blebs of different sizes, many of them as large as the palm of the hand, and some have burst open. Maggots now appear in great numbers, especially in the folds and orifices of the body. Owing to the continued formation of gases, the chest is dilated, the belly acquires the shape of a large ball, and in fact the cellular tissue of the whole body is enormously distended, so as to assume gigantic proportions. The features are distorted, and the entire physiognomy so changed as to make it impossible even for the nearest relatives to recognize the person. The color of the eyes is no longer discernible, for the distinction between pupil and iris can no longer be seen, and the whole sclerotica has assumed a uniform dirty red color. In men,

the penis is greatly swollen, and the scrotum is as large as a child's head. The nails lie loosened at their roots. At this stage of decomposition the effect of difference of temperature is remarkable. Exposure for ten or twelve days at a temperature of 68° to 78° will produce as great changes in the condition of the body as would take place within twenty or thirty days if exposed at a temperature of from 32° to 50°. The body now swarms with maggots, and where it is left unprotected in the air or in water, may become the prey of numerous other animals, as dogs, cats, foxes, wolves, birds of prey, and land and water rats. Fresh-water fish (German) do not feed upon dead bodies. Where the body has thus served for food the marks will be found upon the breast and belly and on the extremities, the bones of which are often laid bare. The consequent opening of the cavities and lesions of the soft parts of the body may easily be distinguished, with a little attention, from traumatic injuries. When a body answers to the above description it may be safely concluded to be that of a person who has been dead at least so long as from fourteen to twenty days; not that this is the ultimate limit, for at this stage of decomposition the process is very gradual, several weeks and even months often making little difference in the appearance of the body.

The stage of putrid colliquation arises within from four to six months after death, or, where the body has been kept in a warm and moist medium, earlier than this. Owing to the continued swelling the chest and belly may now burst open, and these cavities lie exposed. The skull may also yield to the pressure, and the brain exude. The orbital cavities are empty. All the soft parts are in a state of dissolution, and finally disappear; and entire bones, especially of the skull and of the extremities, are laid bare, and the latter separate from the trunk. No trace of features any longer remains. The breasts of females have disappeared, and of the external genital organs nothing indicative of sex remains, unless, perhaps, the hair or the shape of its growth; for in man it usually ascends towards the navel, but in woman is confined to the pubis. But even at this stage the presence of a womb may indicate to which sex the dead person belonged.

Two years after death all that is left of the soft tissues is usually dried, shrunken, brown or black in color, and more or less covered with deposits of phosphate of lime.

Four years after death the separate viscera are rarely distinguishable; and in seven to ten years the soft parts are entirely gone. The hair, bones, and teeth seem to be the most indestructible parts.

411. Putrefaction of internal organs.—The progress of decomposition in the internal organs Casper gives in the following sequence:—

412. Windpipe and larynx.—The windpipe and larynx are the first of these organs which exhibit signs of decomposition. On bodies which still appear quite sound upon the surface, or, at most, show only a few green spots on the under parts, the thin mucous membrane of the trachea exhibits a remarkable paleness throughout its whole extent, except when death has been produced by suffocation or laryngitis. When the process of decomposition has advanced a little further, so that the whole under part of the body has become green, commonly in from three to five days after death in summer, and in from six to eight in winter, this thin mucous membrane has assumed a uniform dirty-red color, in which no vascular injection can be discovered, even with a microscope. This appearance occurs before any marks of decomposition are visible upon other internal organs, and is not influenced by age, constitution, or manner of death. The inexperienced should be careful not to mistake this natural effect of decomposition for capillary injection or the effect of suffocation or of drowning. In the further course of decomposition, the mucous membrane of the windpipe becomes olive-green, the cartilages of the tube separate, until at last the whole organ disappears.

413. Brain of infants.— The organ which next, in order of time, yields to decomposition, is the brain of infants not more than a year old. The delicate texture of the organ at this age, and its comparatively slight protection from the atmosphere, render it an easy prey to decomposing influences, so that it will often be found to be quite destroyed when other organs are perfectly sound, and when no discoloration is to be seen, except upon the surface of the body. In decomposing, it changes to a thin, pulpy substance of a rosy-red color, which discharges itself as soon as any opening is made in the skull, and leaves no trace of the several parts of the organ.

414. Stomach.— The stomach decomposes at an early period. The first traces of decomposition are certain irregular, dirty-red spots in the fundus; they vary much in size, being sometimes as large as a plate, and often have bluish-red streaks, or veins, running through them. These spots appear first on the posterior surface, where they are partially due to hypostatic congestion, but soon after show themselves on the anterior surface. They are described by some authors as inflammatory, or as evidences of asphyxia by hanging or drowning, but are really nothing more than a result of early decomposition.

In case of doubtful poisoning, it is very important to mark these changes. As the process of decomposition advances, the color changes from a dirty-red to a grayish-black.

415. Intestinal canal.— The intestinal canal follows next in order in the progress of decomposition. The peculiar color produced by bile, owing to the contract of a portion of the intestine with the gall-bladder, cannot be mistaken. In the course of decomposition the intestines assume a dark-brown color, they burst open and discharge their contents, become greasy, and are finally reduced to a dark, shapeless, pulpy substance.

416. Spleen.— The spleen, when not diseased, commonly continues sound longer than the intestines, but belongs to the class of organs which decompose at an early period. It grows softer and softer and is easily crushed, and afterwards assumes a bluish-green color, and becomes so soft that it may be rubbed down with the knife-handle.

417. Omentum and mesentery.—The omentum and mesentery, if free from fat, may remain sound several weeks after death; but if fatty, not so long. These organs assume a grayish-green color and dry up.

418. Liver.— The liver in grown persons may remain sound for some weeks after death. In infants it begins to decompose earlier. The first appearance is that of a changeable green color, seen first on the convex surface, afterwards spreading over the whole organ, and finally changing to a coal-black. The size of the liver is lessened in the same proportion as that of the other organs by evaporation of its fluid constituents; the parenchyma becomes pulpy. The texture of the gall-bladder, however, may be discerned at a later period.

419. Brain of adult.— The first trace of decomposition in the brain of grown persons is a light-green color, seen first at its base, which gradually spreads over the whole organ, from without inwards. In a medium temperature the brain softens within two or three weeks; but months may elapse before it changes into that reddish pulpy substance into which, at so early a period, the brains of infants are converted. Where the brain is exposed by a wound in the skull, decomposition may take place much earlier.[19]

All the above-mentioned organs belong to the class of those which decompose at an early period.

[19] Motter has found the brain a still recognizable, grayish mass, lying within the skull after all the other soft tissues had disappeared, and the skeleton had become completely disintegrated; in one case, after eighteen years and two months. On the other hand, the spinal cord seems to disappear distinctly sooner than the brain. In one case he failed to find any vestige of it after three years

420. Heart.— This organ is often found still sound, although collapsed and quite empty of blood, for weeks after death, and after the decomposition of the liver, intestines, etc., has reached an advanced stage. It becomes soft first in the columnæ carneæ and then in the walls, and assumes a greenish, then a grayish-green, and, finally, a black color. The small quantity of pericardial fluid disappears as the process of decomposition advances, and the pericardium becomes quite dry. This stage of decomposition, however, is not commonly reached until some months after death.

421. Lungs.— The lungs begin to exhibit marks of decomposition about the same time as the heart. They may be found in such a state of preservation that their structure may be readily discerned after the external portions of the body are far advanced in the process of decomposition. The first appearance upon these organs is that of little bladders, varying in size from a millet seed to a bean, which are occasioned by the formation of gas under the pleura. These bladders at first appear singly and on different parts of the lungs, but afterwards they increase to such an extent that they cover large portions of the organ, especially on its under surface. The color of the lungs remains for a while unchanged; but, as decomposition advances, they become of a dark, bottle-green color, and, finally, entirely black. They now become soft, collapse, and, at last, their characteristic structure is destroyed.

422. Kidneys.— The kidneys continue sound longer than the heart and lungs, and will never be found to have reached the putrid state in such bodies as are only half decomposed. These organs become soft, and of a chocolate-brown color, but even at this stage their granular texture may be easily discerned. Afterwards, but long after death, they become greasy, of a blackish-green color, and are easily torn.

423. Urinary bladder.— The urinary bladder yields to decomposing influences still later than those organs which have been mentioned.

424. Œsophagus.—The œsophagus will often be found tolerably firm, and only of a dirty grayish-green color some months after death, when the stomach and intestines no longer admit of close examination.

425. Pancreas.— The pancreas resists decomposing influences so strongly that a body must be almost entirely putrid in order that the process be observed in this organ.

and fifteen months. See Journal New York Entomological Soc., 1898, Vol. VI., No. 4, p. 203. The note is found also in the Brit. Med. Journ., No. 22, Vol. IV., p. 987, that when the casket of Sir Thomas Brown (*ob.* 1682) was opened, in August, 1840, the bones, brain, and hair were still in good preservation.

426. Diaphragm.—Green spots appear upon this organ within the first week after death; but after four or six months its muscular and tendinous structure may be distinguished from each other.

427. Arteries and aorta.— The arteries decompose among the last of all the soft organs. Dévergie reports a case where the aorta was perfectly discernible fourteen months after death.

428. Uterus.— According to Dr. Casper, the uterus yields to decomposition last of all the internal organs. It is often found lying in its place, tolerably firm, though of a dirty-red color, and in such a state of preservation that it may be cut open and examined when this would not be possible with any other organ. This statement is applicable even to newly-born female infants.

429. Saponification.— In cases where the body is exposed to the continued action of water, whether by lying in water itself, or in a very damp soil, the process of putrefaction begins but is succeeded by saponification. In this process the fat of the body is combined with the alkaline and the alkaline earth bases to form soaps. Not merely do the tissues which, during life, are represented by fats, become changed into soaps, but also the other tissues undergo a fatty degeneration and become saponified. In fact, the muscles are the first to undergo this change, and then all the other tissues are involved, even the bones, so that bones and all may eventually be cut through with a knife. The product of this process is a homogeneous white, or yellowish-white, fatty substance, which melts in a flame at a temperature of about 126 degrees Fahrenheit, burns, and has a smell somewhat like moldy cheese, but which is by no means very disagreeable. It occupies a greater volume than the tissues during life, giving the body a bloated appearance. This substance is called adipocere. It is difficult to say exactly how soon this process begins, but it usually begins about the end of the second month. It rarely involves the entire body, but is more often limited to a single limb or part of the body. Dévergie thinks that it requires a year to transform an entire body lying in the water, and about three years to convert one lying in the earth. The process cannot reach any great extent in an adult in less than a half year when the body remains in the water, or in less than a year where it lies in moist earth. Casper relates the case[20] of a newborn infant buried in a cellar but a few weeks, which, when exhumed, was found to have undergone a partial conversion into adipocere. He speaks also of the body of another infant that had been buried thirteen months,

[20] Casper, Forensic Medicine, New Sydenham Soc. ed., Vol. I., p. 41.

where a third of the body had been so converted. How long a body will remain in this condition is also uncertain. Motter says[21] that it may persist under the ordinary conditions of interment for ten or twelve years; remaining longest about the pelvis and lower part of the abdomen. He finds the surface form of the body preserved in adipocere from the skin and superficial tissues of the body after the deeper soft tissues of the body have been destroyed and the bones cleaned. Glaister says[22] that he has seen bodies exhumed in the condition of adipocere thirty years after burial.

430. Mummification.— In cases where the action of the putrefactive germs is inhibited, and the body becomes desiccated, the process of putrefaction gives place to mummification. In this the tissues become dry, hard, shriveled, of a rusty brown or black color, with no odor. The finest anatomical details are preserved. This mummification occurs when the body is exposed to a current of dry air. It takes place where the body is exposed in a vault to a drying wind, and in other places where the atmosphere is more or less excluded. It takes place often in the case of bodies buried beneath the burning sands of the desert, and in porous dry soils. At what time the natural process of mummification begins is not settled, but it probably appears soon after death. The leathery appearance of abrasions post mortem shows the same condition in a limited area. Brouardel cites the case of a man who rented a room in a small hotel, and asphyxiated himself in the dark closet. The proprietor was not surprised that the man did not appear again, and made no more than a careless surveillance of the room. A couple of months later he rented the room again, and that night the new lessee found the body of the previous occupant in the closet. It had been something over two months since the death of the first occupant, but there had been no putrefaction, only a beginning mummification. How long bodies can remain in this desiccated condition is shown by the preservation of the Egyptian mummies. The oldest of these is Menekara, third king of Dynasty IV., approximately assigned to the year 4,000 B. C. But in these cases, though it must be admitted that the body was eviscerated and treated with many preservative processes, we find only an analogous condition to natural mummification.

IV. Time since death.

431. General evidence.— The time that has elapsed since the death

[21] Motter, Journ. N. Y. Entomological Soc., 1898, Vol. VI., No. 4, p. 203.

[22] Glaister, Med. Jur., p. 113.

of a person, to be ascertained by examination of the body, cannot be determined with much precision. Vibert[23] gives the following suggestions as, in the main, holding true:—

If the body is warm and supple, less than twenty-four hours have elapsed since death.

If the temperature of the cadaver is the same as that of the surrounding air, and there is no cadaveric rigidity, the period is less than thirty-six hours.

If the post-mortem rigidity is well developed, and there have developed also a few hypostatic areas, the period is between twelve and forty-eight hours.

If the rigidity has dissappeared completely or in part, and the signs of hypostatic congestion are marked, there have probably elapsed four or five days.

If putrefaction has begun, and there is a green area on the abdomen, and the superficial veins are livid, and gas has begun to develop, the period is between three and six days.

After greater lengths of time have elapsed only approximate estimates of time may be attempted, and those with great reserve.

432. Entomological evidence.— The study of the development of insects in the cadaver has been investigated very extensively by Mégnin, who claims to have been able to determine with remarkable accuracy the period that has elapsed since death,[24] and the conditions, roughly, under which death took place. But later investigations have shown that the development of these different groups of parasites depends not merely upon the time which has elapsed, but also upon the conditions modifying the rate of putrefaction; for these various insects follow the process of putrefaction rather than the period of time. Therefore, all estimates of the time that has elapsed after the beginning of putrefaction must be considered as of but very little value.

Motter undertook[25] to determine, if possible, the value of Mégnin's work, and made determinations on one hundred and fifty cadavers, exhumed after periods varying from one year and eleven months to seventy-one years. His work was entirely upon bodies that had been interred in the usual manner. He concludes: "I am thoroughly convinced that we cannot as yet make any broad, universally applicable generalizations on this subject. The field is far too broad, the important and modifying factors are far too numerous and conflicting, the conditions vary too widely, to be thus comprehended in any con-

[23] Vibert, Précis de Méd. Lég., p. 65.
[24] Mégnin, La Fauna des Cadavres.
[25] Motter, Journ. N. Y. Entomological Soc., 1898, Vol. VI., No. 4, p. 228.

cise, unqualified formula. The only conclusion that I can reach, as the result of my studies thus far, is, that it is not safe to draw any conclusion at all. The vital point upon which the whole of Mégnin's theory of the fauna of exposed cadavers turns is, that the various insects appear in distinct 'squads' at definite and specific periods of cadaveric decomposition, and that they succeed each other in regular order. This proposition does not, in any particular, apply to the observations here noted."

Brouardel cites the following interesting case[26] to show the great variation in the rates of putrefaction under apparently the same conditions: At the time of laying the foundation of the Colonne de Juillet, on the site of the Bastile, there were exhumed a number of bodies that had been buried there five years before. The bodies were those of several of the national guards that had been killed there, all at the same time. They were all buried under the same conditions, but some were reduced to skeletons, with only a few remains of their clothes; others were so well preserved that the features of the face could still be recognized. The difference in the rate of putrefaction we do not know how to explain. We may suppose that they did not all have the same germs of putrefaction in their bodies; but that could hardly be proved.

433. Evidence from freezing point of body fluids.— As an aid in determining the period that has elapsed between the time of death and that of the examination, Revensdorf has very recently suggested[27] the use of the lowered freezing point of the fluids of the body. He found the freezing point to sink steadily after death; not uniformly all over the body, but, while at different rates in the various regions, yet at a fairly definite rate for any one region. The limitations of the test are great, for it assumes a constant rate of putrefaction, which will hold, as Revensdorf points out, only in cases where the body temperature has remained pretty constant; for instance, where the body has lain in water. Here his work seems to be very accurate. He determines the freezing point of the blood, for instance, at the time of finding the body, and again the next day, the body meanwhile being kept under the same conditions as before. Knowing, then, the rate of fall of the freezing point of the blood, and the freezing point at the time that the body was found, he calculates the time that should have elapsed since the freezing point was that of blood in the living body.

[26] Brouardel, La Mort et la Mort Subite, p. 92.

[27] Revensdorf, Viertljrschr. f. ger. Med., 1903, 3F., 25–26, p. 23.

BOOK IV.

QUESTIONS DISTINCTIVELY LEGAL.

BOOK IV.

QUESTIONS DISTINCTIVELY LEGAL.

CHAPTER XIII.

RIGHT TO PRACTISE MEDICINE, SURGERY, ETC.

I. State regulation of.

434. Scope of police power generally.—There is an inherent natural right in all persons to practise medicine, in the absence of any restriction by law.[1] Since the practice of medicine has to deal with all those subtle and mysterious influences upon which health and life depend, however, it has long been the practice of the different states to require the possession of a certain degree of skill and learning upon which the community may confidently rely, their possession being generally ascertained upon an examination by competent persons, or inferred from the possession of a diploma or license from an institution established for medical instruction.[2] The state has the right to determine upon what conditions and under what circumstances its citizens shall be entitled to pursue any vocation.[3] And legislation regarding the practice of medicine, surgery, or dentistry, is a valid exercise of the police power of the state for the protection of the public health against the impositions of persons pretending to exercise an art requiring skill, without previous special training.[4]

[1] *State* v. *Morrill*, 7 Ohio S. & C. P. Dec. 52; *State* v. *Ottman*, 6 Ohio S. & C. P. Dec. 265; *Brooks* v. *State*, 88 Ala. 122, 6 So. 903; *State ex rel. Powell* v. *State Medical Examining Board*, 32 Minn. 324, 50 Am. Rep. 575, 20 N. W. 238; *Craig* v. *Medical Examiners*, 12 Mont. 203, 29 Pac. 532; *Denton* v. *State*, 21 Neb. 446, 32 N. W. 222; *Dent* v. *West Virginia*, 129 U. S. 114, 32 L. ed. 623, 9 Sup. Ct. Rep. 231.

This was so both under the common law and the civil law. *State* v. *Ottman*, 6 Ohio S. & C. P. Dec. 265.

And, in the absence of statutory prohibition, any person may lawfully engage in the practice of dentistry. *Robinson* v. *People*, 23 Colo. 123, 46 Pac. 676.

[2] *Dent* v. *West Virginia*, 129 U. S. 114, 32 L. ed. 623, 9 Sup. Ct. Rep. 231.

And see *Driscoll* v. *Com.* 93 Ky. 393, 20 S. W. 431; *Allopathic Medical Examiners* v. *Fowler*, 50 La. Ann. 1357, 24 So. 809.

[3] *People* v. *Fulda*, 52 Hun, 65, 4 N. Y. Supp. 945.

[4] *Richardson* v. *State*, 47 Ark. 562, 2 S. W. 187; *Gosnell* v. *State*, 52 Ark. 228, 12 S. W. 392; *Brooks* v. *State*, 88 Ala. 123, 6 So. 902; *Ex parte Frazer*, 54 Cal. 94; *Ex parte Johnson*, 62 Cal. 263; *Ex parte McNulty*, 77 Cal. 164, 11 Am. St. Rep. 257, 19 Pac. 237; *People use of State Bd. of Health* v. *Blue Mountain Joe*, 129 Ill. 370, 21 N. E. 923; *State ex rel. Burroughs* v. *Webster*, 150 Ind. 616, 41 L. R. A. 212, 50 N. E. 750; *Wilkins* v. *State*, 113 Ind. 514, 16 N. E. 192; *Eastman* v. *State*, 109 Ind. 278, 58 Am. Rep. 400, 10 N. E. 97; *State* v. *Creditor*, 44 Kan. 565, 21 Am. St. Rep. 306, 24 Pac. 346; *Meffert* v. *State Bd. of Medical Registration*, 66 Kan. 710, 72 Pac. 247; *Driscoll* v. *Com.* 93 Ky. 393, 20 S. W. 431; *Allopathic Medical Examiners* v. *Fowler*, 50 La. Ann. 1358, 24 So. 809; *State* v. *Knowles*, 90 Md. 646, 49 L. R. A. 695, 45 Atl. 877; *People* v. *Reetz*, 127 Mich. 87, 86 N. W. 396; *State ex rel. Powell* v. *State Medical Examining Board*, 32 Minn. 324, 50 Am. Rep. 575, 20 N. W. 238; *State* v. *Vandersluis*, 42 Minn. 129, 6 L. R. A. 119, 43 N. W. 789; *Craig* v. *Medical Examiners*, 12 Mont. 203, 29 Pac. 532; *Gee Wo* v. *State*, 36 Neb. 241, 54 N. W. 513; *State* v. *Buswell*, 40 Neb. 159, 24 L. R. A. 68, 58 N. W. 728; *Lincoln Medical College* v. *Poynter*, 60 Neb. 228, 82 N. W. 855; *State* v. *Chapman*, 69 N. J. L. 464, 55 Atl. 94; *Re Roe Chung*, 9 N. M. 130, 49 Pac. 952; *State* v. *Call*, 121 N. C. 643, 28 S. E. 517; *State* v. *Van Doran*, 109 N. C. 864, 14 S. E. 32; *France* v. *State*, 57 Ohio St. 1, 47 N. E. 1041; *State* v. *Gravett*, 65 Ohio St.

The legislature has plenary power over the whole subject, and is entitled to judge of what is wise and expedient, both as to the qualifications required and as to the method of ascertaining them.[5] And the courts cannot exercise any supervisory power as long as the legislature keeps within the limits of the Constitution.[6] And the state may require good character as a condition of the practice of medicine, as well as professional qualifications;[7] and it may determine what shall be evidence of such character.[8] And unprofessional or dishonorable conduct may be made a ground for refusing a license, though the applicant is otherwise qualified.[9] But, in such case, "unprofessional" means the same as dishonorable, and does not refer to matters of professional ethics.[10] And an applicant possessed of the requisite educational qualifications should not be denied a license, without notice and a hearing, for unprofessional or dishonorable conduct, or on the ground that he is not worthy of public confidence.[11]

The power to make regulations, the violation of which shall be a criminal offense, however, is one which cannot be delegated to a municipal corporation, when the same act is not a crime under state laws.[12] And it has recently been held that patients have a right to

289, 55 L. R. A. 791, 87 Am. St. Rep. 605, 62 N. E. 325; *State* v. *Ottman*, 6 Ohio S. & C. P. Dec. 265; *State* v. *Randolph*, 23 Or. 74, 17 L. R. A. 470, 37 Am. St. Rep. 655, 31 Pac. 201; *Com.* v. *Finn*, 11 Pa. Super. Ct. 620; *Com.* v. *Wilson*, 19 Pa. Co. Ct. 521; *Re Campbell*, 197 Pa. 581, 47 Atl. 860; *State Bd. of Health* v. *Roy*, 22 R. I. 538, 48 Atl. 802; *Antle* v. *State*, 6 Tex. App. 202; *State* v. *Goldman*, 44 Tex. 104; *Logan* v. *State*, 5 Tex. App. 306; *People* v. *Hasbrouck*, 11 Utah, 291, 39 Pac. 918; *State* v. *Carey*, 4 Wash. 427, 30 Pac. 729; *State ex rel. Smith* v. *Dental Examiners*, 31 Wash. 492, 72 Pac. 110; *State ex rel. Kellogg* v. *Currens*, 111 Wis. 431, 56 L. R. A. 252, 87 N. W. 561; *Dent* v. *West Virginia*, 129 U. S. 114, 32 L. ed. 623, 9 Sup. Ct. Rep. 231; *Hawker* v. *New York*, 170 U. S. 189, 42 L. ed. 1002, 18 Sup. Ct. Rep. 573; *Reg.* v. *Surgeons of London*, 2 Burr, 892; *College of Physicians* v. *Levett*, 1 Ld. Raym. 472.

And one who has an established practice in the healing of diseases may be required to conform to such reasonable standard respecting qualification therefor as the general assembly may prescribe, having in view the public health and welfare. *State* v. *Gravett*, 65 Ohio St. 289, 55 L. R. A. 791, 87 Am. St. Rep. 605, 62 N. E. 325.

[5] *Gosnell* v. *State*, 52 Ark. 228, 12 S. W. 392; *Bragg* v. *State*, 134 Ala. 165, 58 L. R. A. 925, 32 So. 767; *Logan* v. *State*, 5 Tex. App. 306.

[6] *Gosnell* v. *State*, 52 Ark. 228, 12 S. W. 392.

[7] *Hawker* v. *New York*, 170 U. S. 189, 42 L. ed. 1002, 18 Sup. Ct. Rep. 573; *Thompson* v. *Hazen*, 25 Me. 104; *State ex rel. Powell* v. *State Medical Examining Board*, 32 Minn. 324, 50 Am. Rep. 575, 20 N. W. 238.

[8] *Hawker* v. *New York*, 170 U. S. 189, 42 L. ed. 1002, 18 Sup. Ct. Rep. 573.

[9] *State ex rel. Powell* v. *State Medical Examining Board*, 32 Minn. 324, 50 Am. Rep. 575, 20 N. W. 238.

[10] *Ibid.*

[11] *Ibid; Gage* v. *New Hampshire Eclectic Medical Soc.* 63 N. H. 92, 56 Am. Rep. 492.

[12] *State ex rel. Baldwin* v. *Prendergast*, 8 Ohio C. C. 401.

Where a physician is licensed by authority of a state to practise medicine, a city within the state, in which he resides, cannot require him, under penalty, to take out a license before he can practise his profession therein, though he would be subject to an occupation tax imposed thereby. *Savannah* v. *Charlton*, 36 Ga. 460.

use methods of treatment requiring less skill and learning on the part of the practitioner than is necessary to constitute one a doctor of medicine or a surgeon; and an act forbidding all treatment of all diseases, mental or physical, without surgery or medicine, or by any other method except by a doctor of medicine, is an unconstitutional attempt to confer a monopoly of that method of treatment upon doctors of medicine, not warranted by the police power.[13]

435. Conformity to particular constitutional provisions.—Statutory regulation of the right to practise medicine or surgery, leaving the field open to all who possess the prescribed qualifications, does not abridge the constitutional privileges or immunities of citizens;[14] nor does such regulation with reference to dentists.[15] And statutory provisions of this class do not deprive any person of life, liberty, or

[13]*State* v. *Biggs*, 133 N. C. 729, 64 L. R. A. 139, 98 Am. St. Rep. 731, 46 S. E. 401.

In the above case it was held that an examination and license as for a practitioner of medicine and surgery cannot be required for the treatment of a disease by baths, physical culture, and manipulations of muscles, bones, spine, solar plexus, and advice as to diet; since there is nothing in such treatment that calls for the exercise of the police power by way of an examination by a board learned in obstetrics, therapeutics, materia medica, and other things, a knowledge of which is required by a doctor of medicine.

[14]*Harding* v. *People*, 10 Colo. 387, 15 Pac. 727; *Brooks* v. *State*, 88 Ala. 122, 6 So. 902; *Ex parte McNulty*, 77 Cal. 164, 11 Am. St. Rep. 257, 19 Pac. 237; *Williams* v. *People*, 121 Ill. 84, 11 N. E. 881; *Orr* v. *Meek*, 111 Ind. 40, 11 N. E. 787; *Eastman* v. *State*, 109 Ind. 278, 58 Am. Rep. 400, 10 N. E. 97; *State ex rel. Walker* v. *Green*, 112 Ind. 462, 14 N. E. 352; *Iowa Eclectic Medical College Asso.* v. *Schrader*, 87 Iowa, 659, 20 L. R. A. 355, 55 N. W. 24; *People* v. *Phippin*, 70 Mich. 6, 14 Am. St. Rep. 470, 37 N. W. 888; *People* v. *Reetz*, 127 Mich. 87, 86 N. W. 396; *Craig* v. *Medical Examiners*, 12 Mont. 203, 29 Pac. 532; *Ex parte Spinney*, 10 Nev. 319; *France* v. *State*, 57 Ohio St. 1, 47 N. E. 1041; *State* v. *Gravett*, 65 Ohio St. 289, 55 L. R. A. 791, 87 Am. St. Rep. 605, 62 N. E. 325; *State* v. *Ottman*, 6 Ohio S. & C. P. Dec. 265; *State* v. *Randolph*, 23 Or. 74, 17 L. R. A. 470, 37 Am. St. Rep. 655, 31 Pac. 201; *Com.* v. *Finn*, 11 Pa. Super. Ct. 620; *Re Campbell*, 197 Pa. 581, 47 Atl. 860; *People* v. *Hasbrouck*, 11 Utah, 291, 39 Pac. 918; *State* v. *Carey*, 4 Wash. 424, 30 Pac. 729; *Fox* v. *Territory*, 2 Wash. Terr. 297, 5 Pac. 603; *State* v. *Dent*, 25 W. Va. 1; *State ex rel. Kellogg* v. *Currens*, 111 Wis. 431, 56 L. R. A. 252, 87 N. W. 561.

And see *Kenedy* v. *Schultz*, 6 Tex. Civ. App. 461, 25 S. W. 667.

The privileges and immunities referred to in the constitutional provision are confined to such as are fundamental and belong of right to citizens of all free governments. *Ferner* v. *State*, 151 Ind. 247, 51 N. E. 360.

And they must be something for the individual benefit or advantage of the person or association upon which they are conferred, and not a power to perform a public duty for the benefit of other persons or the public. *Ex parte Gerino* (Cal.) 77 Pac. 166.

[15]*Wilkins* v. *State*, 113 Ind. 514, 16 N. E. 192; *Gosnell* v. *State*, 52 Ark. 228, 12 S. W. 392; *State* v. *Creditor*, 44 Kan. 565, 21 Am. St. Rep. 306, 24 Pac. 346; *State* v. *Vandersluis*, 42 Minn. 129, 6 L. R. A. 119, 43 N. W. 789.

And a statute providing that any person desiring to practise dentistry may be examined with reference to qualifications by the board of medical examiners will not be held unconstitutional on the ground that its language is so vague and indeterminate as to permit an examination upon any subject; since it would be presumed that the qualifications referred to are those appropriate to, and requisite for, the purpose of dentistry. *State* v. *Knowles*, 90 Md. 646, 49 L. R. A. 695, 45 Atl. 877.

property, without due process of law;[16] or deny to any person within the jurisdiction the equal protection of the law.[17] Nor are such laws an unconstitutional interference with vested rights,[18] or an impairment of the obligation of contracts,[19] or an unconstitutional discrimination between persons or classes,[20] though graduates of designated

[16]*State* v. *Carey*, 4 Wash. 426, 30 Pac. 729; *State* v. *Mosher*, 78 Iowa, 321, 43 N. W. 202; *Meffert* v. *State Bd. of Medical Registration*, 66 Kan. 710, 72 Pac. 241; *State* v. *Knowles*, 90 Md. 646, 49 L. R. A. 695, 45 Atl. 877; *State* v. *Phippin*, 70 Mich. 6, 14 Am. St. Rep. 470, 37 N. W. 888; *State* v. *State Medical Examining Board*, 32 Minn. 324, 50 Am. Rep. 575, 20 N. W. 238; *Craig* v. *Medical Examiners*, 12 Mont. 203, 29 Pac. 532; *State* v. *Gravett*, 65 Ohio St. 289, 55 L. R. A. 791, 87 Am. St. Rep. 605, 62 N. E. 325; *State ex rel. Hygea Medical College* v. *Coleman*, 64 Ohio St. 377, 60 N. E. 568; *Com.* v. *Finn*, 11 Pa. Super. Ct. 620; *State Bd. of Health* v. *Roy*, 22 R. I. 538, 48 Atl. 802; *People* v. *Hasbrouck*, 11 Utah, 291, 39 Pac. 918; *State ex rel. Kellogg* v. *Currens*, 111 Wis. 431, 56 L. R. A. 252, 87 N. W. 561; *Dent* v. *West Virginia*, 129 U. S. 114, 32 L. ed. 623, 9 Sup. Ct. Rep. 231.

A uniform rule and a uniform process for ascertaining and determining qualifications of persons seeking license to practise medicine, operating equally on all persons, and affording all the right to establish their qualifications before the board, is due process of law. *People* v. *Hasbrouck*, 11 Utah, 291, 39 Pac. 918.

And a statute empowering a board of examiners to grant permits to practise dentistry is not unconstitutional as failing to afford due process of law because it does not provide for the right of appeal from the decisions of the board. *Ferner* v. *State*, 151 Ind. 247, 51 N. E. 360.

In *Ritter* v. *Rodgers*, 8 Pa. Co. Ct. 451, however, it was held that a statute requiring veterinary surgeons to register their diplomas within six months after the passage of the act, making it a misdemeanor to use the title of veterinary surgeon without doing so, containing no saving clause with reference to those having no diplomas, is contrary to the constitutional provision that no one shall be deprived of his property unless by judgment of his peers or the law of the land.

[17]*State* v. *Carey*, 4 Wash. 426, 30 Pac. 729; *Scholle* v. *State*, 90 Md. 729, 50 L. R. A. 411, 46 Atl. 326; *State* v. *Call*, 121 N. C. 643, 28 S. E. 517; *Com.* v. *Finn*, 11 Pa. Super. Ct. 620; *Com.* v. *Wilson*, 19 Pa. Co. Ct. 521; *State Bd. of Health* v. *Roy*, 22 R. I. 538, 48 Atl. 802.

[18]*State* v. *Morrill*, 7 Ohio S. & C. P. Dec. 52; *Kowenstrot* v. *State*, 6 Ohio S. & C. P. Dec. 467; *Allopathic Medical Examiners* v. *Fowler*, 50 La. Ann. 1358, 24 So. 809; *People* v. *Moorman*, 86 Mich. 433, 49 N. W. 263; *State* v. *Chapman*, 69 N. J. L. 464, 55 Atl. 94; *Dent* v. *West Virginia*, 129 U. S. 114, 32 L. ed. 623, 9 Sup. Ct. Rep. 231.

[19]*State* v. *Morrill*, 7 Ohio S. & C. P. Dec. 52; *State ex rel. Hygea Medical College* v. *Coleman*, 64 Ohio St. 377, 55 L. R. A. 105, 60 N. E. 568; *Kowenstrot* v. *State*, 6 Ohio S. & C. P. Dec. 467; *Regents of University* v. *Williams*, 9 Gill & J. 365, 31 Am. Dec. 72; *Hawker* v. *New York*, 170 U. S. 198, 42 L. ed. 1007, 18 Sup. Ct. Rep. 573.

A statute incorporating a medical society with such powers and privileges as pertain to other like corporations is not a contract with the society and its regular licensees to permit them to practise medicine and surgery in the state, which would be impaired by the subsequent enactment of a statute requiring different qualifications. *State* v. *Bohemier*, 96 Me. 257, 52 Atl. 643.

[20]*State* v. *Creditor*, 44 Kan. 565, 21 Am. St. Rep. 306, 24 Pac. 346; *State* v. *Wilcox*, 64 Kan. 789, 68 Pac. 634; *Gothard* v. *People* (Colo.) 74 Pac. 890; *Re Inman* (Idaho) 69 Pac. 120; *Driscoll* v. *Com.* 93 Ky. 393, 20 S. W. 431; *State* v. *Knowles*, 90 Md. 646, 49 L. R. A. 695, 45 Atl. 877; *Hewitt* v. *Charier*, 16 Pick. 353; *State* v. *Hathaway*, 115 Mo. 36, 21 S. W. 1081; *State* v. *Randolph*, 23 Or. 74, 17 L. R. A. 470, 37 Am. St. Rep. 655, 31 Pac. 201; *Com.* v. *Finn*, 11 Pa. Super. Ct. 620; *Com.* v. *Wilson*, 19 Pa. Co. Ct. 521; *Re Campbell*, 197 Pa. 581, 47 Atl. 860; *Fox* v. *Territory*, 2 Wash. Terr. 297, 5 Pac. 603. And see *Dowdell* v. *McBride*, 92 Tex. 239, 47 S. W. 524; *Kenedy* v. *Schultz*, 6 Tex. Civ. App. 462, 25 S. W. 667.

A statute allowing dental students to practise during the period of their en-

classes of medical schools are exempted and nongraduates included;[21] and though commissioned surgeons of the United States Army and Navy, and surgeons of the marine hospital are exempted;[22] and though physicians or surgeons in actual consultation who are called for that purpose from other states are exempted;[23] and the same rule applies to exemption of persons practising under the supervision of a licensed medical preceptor,[24] and to exemption of persons who have practised in the state for a specified period.[25] Nor are such provisions *ex post facto* laws,[26] or an illegal attempt to confer ju-

rollment in a dental college and attendance therein does not unlawfully discriminate between dental students. *State* v. *Vandersluis*, 42 Minn. 129, 6 L. R. A. 119, 43 N. W. 789.

And a charter authorizing a town to license, regulate, and prohibit selling intoxicating liquor, warrants an ordinance making it unlawful for a physician to give a prescription to a well person, or any person apparently well, to enable him to get liquor to be used as a beverage; and such an ordinance is not unreasonable or oppressive, and does not discriminate against the medical profession. *Carthage* v. *Buckner*, 4 Ill. App. 317.

[21]*Craig* v. *Medical Examiners*, 12 Mont. 203, 29 Pac. 532; *State* v. *Knowles*, 90 Md. 646, 49 L. R. A. 695, 45 Atl. 877; *State ex rel. Kellogg* v. *Currens*, 111 Wis. 431, 56 L. R. A. 252, 87 N. W. 561.

And a statute requiring a diploma from a dental college, in order to be eligible for examination for license as a dentist, with discretion in the board of examiners to dispense with it where the applicant has practised for ten years, is not an unconstitutional discrimination between persons or classes, though some may not be pecuniarily able to attend a dental college. *State* v. *Vandersluis*, 42 Minn. 129, 6 L. R. A. 119, 43 N. W. 789.

[22]*Scholle* v. *State*, 90 Md. 729, 50 L. R. A. 411, 46 Atl. 326.

[23]*Ibid; State* v. *Van Doran*, 109 N. C. 864, 14 S. E. 32.

And a proviso in a statute that it shall not apply to midwives is governed by the same rule. *State* v. *Van Doran*, 109 N. C. 864, 14 S. E. 32.

And a statute requiring a license of all who announce to the public their readiness to heal, cure, or relieve those suffering from disease, is not void on the ground that the classification is unjust and arbitrary because it exempts duly licensed physicians of other states whose practice extends into the state, opticians, and nurses. *Parks* v. *State*, 159 Ind. 211, 59 L. R. A. 190, 64, N. E. 862.

[24]*Scholle* v. *State*, 90 Md. 729, 50 L. R. A. 411, 46 Atl. 326.

And an act regulating the practice of medicine is not invalid as illegally discriminating against or in favor of any class of physicians because it contains a provision that nothing therein shall be construed as interfering with any religious beliefs in the treatment of diseases. *State* v. *Wilcox*, 64 Kan. 789, 68 Pac. 634.

[25]*Ex parte Spinney*, 10 Nev. 323; *Williams* v. *People*, 121 Ill. 84, 11 N. E. 881.

[26]*State* v. *Creditor*, 44 Kan. 568, 21 Am. St. Rep. 306, 24 Pac. 346; *State ex rel. Walker* v. *Green*, 112 Ind. 471, 14 N. E. 352; *Eastman* v. *State*, 109 Ind. 281, 58 Am. Rep. 400, 10 N. E. 97; *Craig* v. *Medical Examiners*, 12 Mont. 211, 29 Pac. 532; *Ex parte Spinney*, 10 Nev. 325; *State* v. *Chapman*, 69 N. J. L. 464, 55 Atl. 94; *State* v. *Ottman*, 6 Ohio S. & C. P. Dec. 265; *France* v. *State*, 57 Ohio St. 1, 47 N. E. 1041; *State ex rel. Hygea Medical College* v. *Coleman*, 64 Ohio St. 377, 55 L. R. A. 105, 60 N. E. 568; *Com.* v. *Taylor*, 2 Kulp, 364; *State* v. *Carey*, 4 Wash. 430, 30 Pac. 729; *Fox* v. *Territory*, 2 Wash. Terr. 297, 5 Pac. 603; *Hawker* v. *New York*, 170 U. S. 189, 42 L. ed. 1002, 18 Sup. Ct. Rep. 573.

In *Com.* v. *Wasson* (Pa.) 3 Crim. L. Mag. 726, however, it was held that a statute making it unlawful and punishable to practise dentistry without a diploma, not applying to persons who had been engaged in the continuous practise of dentistry in the state for three years or over at the time of or prior to the act, is unconstitutional with

dicial power belonging exclusively to the courts upon an administrative body,[27] or a prohibited grant of special or exclusive privileges;[28] nor are they prohibited special laws.[29] And an exemption from the provisions of such a regulation, of persons practising at the time of its adoption, does not violate constitutional provisions as to equal privileges and immunities.[30] A statute regulating the practice of medicine, surgery, and dentistry, which excepts from its provisions persons who have practised for a certain time, and also nonresidents of the state called into it for consultation, however, has been held to be unconstitutional, as discriminating between persons engaged in the same business, and against citizens of the state in favor of citizens of other states.[31] And one which discriminates between

reference to persons practising at the date of its passage, as being *ex post facto* in making an act punishable which was innocent when done.

[27]*France* v. *State*, 57 Ohio St. 1, 47 N. E. 1041; *Re Inman* (Idaho) 69 Pac. 120; *Wilkins* v. *State*, 113 Ind. 514, 16 N. E. 192; *State* v. *Hathaway*, 115 Mo. 36, 21 S. W. 1081; *State Bd. of Health* v. *Roy*, 22 R. I. 538, 48 Atl. 802; *People* v. *Hasbrouck*, 11 Utah, 293, 39 Pac. 918.

[28]*Williams* v. *People*, 121 Ill. 84, 11 N. E. 881; *Ferner* v. *State*, 151 Ind. 247, 51 N. E. 360; *State ex rel. Walker* v. *Green*, 112 Ind. 462, 14 N. E. 352; *State* v. *Bair*, 112 Iowa, 466, 51 L. R. A. 776, 84 N. W. 532; *Iowa Eclectic Medical College Asso.* v. *Schrader*, 87 Iowa, 659, 20 L. R. A. 355, 55 N. W. 24; *Re Campbell*, 197 Pa. 581, 47 Atl. 860; *State* v. *Carey*, 4 Wash. 424, 30 Pac. 729.

[29]*Allopathic Medical Examiners* v. *Fowler*, 50 La. Ann. 1358, 24 So. 809; *Ex parte Frazer*, 54 Cal. 94; *Wilkins* v. *State*, 113 Ind. 516, 16 N. E. 192; *Iowa Eclectic Medical College Asso.* v. *Schrader*, 87 Iowa, 659, 20 L. R. A. 355, 55 N. W. 24; *Re Campbell*, 197 Pa. 581, 47 Atl. 860.

And an act entitled "An Act Regulating the Practice of Medicine," providing for the imposition of a license on any itinerant vendor of any drug, nostrum, etc., intended for the treatment of disease or injury, and providing a penalty for selling without paying the tax, is not in contravention of a constitutional provision that no act should embrace more than one subject and that should be expressed in the title. *People use of State Bd. of Health* v. *Blue Mountain Joe*, 129 Ill. 370, 21 N. E. 923. And see *State* v. *Wilcox*, 64 Kan. 789, 68 Pac. 634.

Nor is a statute regulating the practice of dentistry, and providing for a penalty for practising dentistry without a license, entitled "An Act to Regulate the Practice of Dentistry." *State ex rel. Smith* v. *Dental Examiners*, 31 Wash. 492, 72 Pac. 110; *Morris* v. *State*, 117 Ga. 1, 43 S. E. 368.

And a title, "An Act Regulating the Practice of Medicine, Surgery, and Obstetrics," properly covers a definition of the practice of medicine, and the designation of those who must obtain a license before engaging in such practice. *Parks* v. *State*, 159 Ind. 211, 59 L. R. A. 190, 64 N. E. 862.

[30]*State* v. *Creditor*, 44 Kan. 565, 21 Am. St. Rep. 306, 24 Pac. 346; *State* v. *Call*, 121 N. C. 643, 28 S. E. 517; *State* v. *Van Doran*, 109 N. C. 864, 14 S. E. 32.

[31]*State* v. *Hinman*, 65 N. H. 103, 23 Am. St. Rep. 22, 18 Atl. 194; *State* v. *Pennoyer*, 65 N. H. 113, 5 L. R. A. 709, 18 Atl. 878. *Contra*, *State* v. *Bohemier*, 96 Me. 257, 52 Atl. 643.

But a statute giving a board of medical examiners power to license without examination persons who have passed an equally strict examination in another state does not unjustly discriminate between persons holding certificates from the examining boards of other states, by subjecting one to an examination, and admitting another without it, the intent of the act being to admit no one to practise who has not passed such an examination as is required of the residents of the state. *Ex parte Gerino* (Cal.) 77 Pac. 166.

persons who have practised for the designated period immediately preceding its enactment, and others who have practised the required period, but at other times, is unconstitutional.[32]

436. Preference between schools.—The general power of the state to require that only persons skilled in the healing of diseases shall hold themselves out to the public as physicians or surgeons cannot be used to build up any particular school of medicine; it is designed to permit only those qualified by education and good moral character to engage in the profession.[33] And a medical board cannot determine what school or system of medicine in its theories and practices is right; it can only determine whether the applicant possesses the statutory qualifications to practise in accordance with the recognized theories of a particular school or system.[34] And a statute discriminating against practitioners of osteopathy, or of other similar schools of practice, by requiring a longer term of study as a condition of their obtaining certificates permitting them to prescribe drugs or perform surgery than is required of those contemplating the regular practice as a condition of their obtaining unlimited certificates for the practice of medicine and surgery, is, as to such discrimination, void, and compliance therewith cannot be exacted of those who practise osteopathy.[35] Authority to refuse certificates to graduates of medical schools not in good standing, however, does not extend special privileges or immunities to other schools that are determined to be in good

[32] *Ex parte Spinney*, 10 Nev. 323.

And a statutory provision making it unlawful to practise denistry without a diploma, not applying to persons engaged in the continuous practice of dentistry in the state for three years or over at the time of or prior to the act, is unconstitutional as to a person practising at the time of its passage, though for a less period than three years, as depriving him of his property without due process of law. *Com.* v. *Wasson* (Pa.) 3 Crim. L. Mag. 726.

An act to regulate the practice of medicine is not unconstitutional on the ground that it makes no specific disposition of the fees collected from the applicants, where the power is conferred by necessary implication to devote the fees to the payment of necessary expenses. *People* v. *Hasbrouck*, 11 Utah, 291, 39 Pac. 918.

[33] *Gee Wo* v. *State*, 36 Neb. 241, 54 N. W. 513.

The relative merits of the different schools of medicine may become a subject of inquiry, when the skill or ability of a practitioner in a given case is to be passed upon as a matter of fact; but the law does not and cannot supply any positive rules for the interpretation of medical science. *Corsi* v. *Maretzek*, 4 E. D. Smith, 1.

And where, under a contract, a person is to select a physician, all he is required to do is to appoint a person who makes it his business to practise physic; and it is wholly immaterial to what school of medicine the person so selected belongs, or whether he belongs to any. *Ibid.*

[34] *State* v. *Mylod*, 20 R. I. 632, 41 L. R. A. 430, 40 Atl. 753.

Authority vested in a medical society to issue diplomas to physicians and surgeons refers to all who practise and are recognized as practitioners, and cannot be limited to one school of practitioners in preference to another. *Raynor* v. *State*, 62 Wis. 289, 22 N. W. 430.

[35] *State* v. *Gravett*, 65 Ohio St. 289, 55 L. R. A. 791, 87 Am. St. Rep. 605, 62 N. E. 325.

standing.[36] And constitutional provisions prohibiting preference between different schools of medicine with reference to license to practise medicine cannot be construed as intended to control legislation in the entirely different matter of prescribing the qualifications of members of boards of medical examiners.[37] And a statute providing that the board of medical examiners must be graduates of medical schools recognized by a particular association is not affected by such provisions, though that association is composed entirely of adherents of one particular school,[38] or though a different number of members is taken from the different schools.[39] And it has been held that requiring a magnetic healer to procure a license before engaging in the healing art does not deprive him of his liberty or property without due process of law, or deny him the equal protection of the law; and that permitting the licensing of osteopathists, while excluding mental healing, is not an unlawful discrimination which will render the statute providing for it void.[40]

II. Admission to practise.

437. Methods of ascertaining fitness.—The methods of ascertaining fitness of persons desiring to practise medicine, surgery, or dentistry, are various. It is the right of the legislative department of the government to select the agency by which the fitness of applicants for permission to practise is to be ascertained.[41] Among the prevailing methods are provisions for the creation of state and county medical

[36]*Iowa Eclectic Medical College Asso.* v. *Schrader*, 87 Iowa, 659, 20 L. R. A. 355, 55 N. W. 24.

[37]*Dowdell* v. *McBride*, 92 Tex. 239, 47 S. W. 524, Affirming 18 Tex. Civ. App. 645, 45 S. W. 397; *Iowa Eclectic Medical College Asso.* v. *Schrader*, 87 Iowa, 659, 20 L. R. A. 355, 55 N. W. 24.

A statute creating a board of medical examiners to be composed of physicians recommended for appointment from lists to be furnished by particular societies is not open to attack as discriminating in favor of particular schools of medicine, since no constitutional right is given to particular individuals entertaining peculiar theories of medicine to group themselves together, and call themselves a special school under a selected name, and insist that they be recognized and dealt with as such. *Allopathic Medical Examiners* v. *Fowler*, 50 La. Ann. 1358, 24 So. 809.

[38]*Kenedy* v. *Schultz*, 6 Tex. Civ. App. 461, 25 S. W. 667; *Ex parte Gerino* (Cal.) 77 Pac. 166; *Brown* v. *People*, 11 Colo. 109, 17 Pac. 104.

[39]*Ferner* v. *State*, 151 Ind. 247, 51 N. E. 360; *Ex parte Gerino* (Cal.) 77 Pac. 166.

No right is given to violate the criminal laws of the state by practising medicine without a license, by the fact that a board of examiners as organized discriminates in favor of the regular practitioners, and against all other classes. *Bragg* v. *State*, 134 Ala. 165, 58 L. R. A. 925, 32 So. 767.

[40]*Parks* v. *State*, 159 Ind. 211, 59 L. R. A. 190, 64 N. E. 862.

[41]*Allopathic Medical Examiners* v. *Fowler*, 50 La. Ann. 1358, 24 So. 809; *Overshiner* v. *State*, 156 Ind. 187, 51 L. R. A. 748, 83 Am. St. Rep. 187, 59 N. E. 468; *Wilkins* v. *State*, 113 Ind. 514, 16 N. E. 192; *State* v. *Fleischer*, 41 Minn. 69, 42 N. W. 696; *Kowenstrot* v. *State*, 6 Ohio. S. & C. P. Dec. 467; *Logan* v.

societies to comprise the whole profession, leaving the question of membership and fitness within proper restrictions to the societies themselves;[42] and provisions for the granting of licenses to graduates of, or holders of diplomas from, medical schools or colleges of satisfactory reputability with reference to their requirements, to be ascertained by a properly constituted board of examiners;[43] and provisions for boards of medical examiners for the examination of applicants to ascertain their qualifications.[44] And on this subject it is within the power of the legislature to confer authority on corporations or medical associations to select members of the board of examiners;[45] and each school of medicine need not be represented in a state board by equal numbers.[46] Though the method provided by the legislature for the appointment of members of the board is invalid, however, the other provisions of law with reference to the practice of medicine would remain unaffected.[47]

438. Powers of boards of examiners generally.—Where the legislature has prescribed the conditions precedent, upon the fulfilment of

State, 5 Tex. App. 306. And see *Ex parte Gerino* (Cal.) 77 Pac. 166.

A statute forbidding persons to practise medicine when not duly licensed by the state board of health is not void as prohibitive in its scope, but is regulative only. *Little* v. *State*, 60 Neb. 749, 51 L. R. A. 717, 84 N. W. 248.

But the offices of a board of medical censors, authorized and required to decide on the qualifications of applicants for license to practise medicine, appointed to hold during good behavior, are vacated by subsequent enactment of a constitutional provision declaring that no person shall be appointed or elected to office for life, or during good behavior, but the tenure of all offices shall be for a limited time. *Bryant* v. *State*, 1 How. (Miss.) 351.

[42] See *infra*, § 439.

[43] See *infra*, § 440.

[44] See *infra*, § 441.

Under the Alabama statute there are two organizations or systems under which physicians may obtain authority to practise their profession. One system is by license from a medical board established by the court of county commissioners of the county in which the applicant proposes to practise. Under that system a regular graduate of a medical college in the United States, having a diploma and having it properly recorded, is entitled to practise in a county having only a medical board established by the county commissioners, and having no board of medical examiners. The other system is by license or certificate of qualification from a board of examiners organized in accordance with the constitution of the medical association of the state and in affiliation with it. *Brooks* v. *State*, 88 Ala. 122, 6 So. 902.

[45] *Overshiner* v. *State*, 156 Ind. 187, 51 L. R. A. 748, 83 Am. St. Rep. 187, 59 N. E. 468; *Wilkins* v. *State*, 113 Ind. 514, 16 N. E. 192; *Scholle* v. *State*, 90 Md. 729, 50 L. R. A. 411, 46 Atl. 326.

The appointment of medical boards by incorporated medical societies under statutory authority does not violate a constitutional provision for the nomination of officers by the governor, unless a different mode of appointment is prescribed by the law creating the office. *Scholle* v. *State*, 90 Md. 729, 50 L. R. A. 411, 46 Atl. 326.

But the legislature cannot delegate to a board of medical examiners the power of declaring by rules and regulations what shall constitute unprofessional conduct, and thus, by its own act, independent of the legislature, establish a crime, that not being within the police power, under which such provisions are enacted. *Ex parte McNulty*, 77 Cal. 164, 11 Am. St. Rep. 257, 19 Pac. 237.

[46] *Brown* v. *People*, 11 Colo. 109, 17 Pac. 104.

[47] *Ex parte Gerino* (Cal.) 77 Pac. 166.

which one may begin and continue the practice of medicine, surgery, etc., and established a board of examiners for the purpose of ascertaining fitness, it is its province, as a general rule, in the first instance, to declare whether such conditions have been observed.[48] And its determination is final, subject only to revision by the courts for errors and abuses.[49] But a board of examiners, or other board authorized to pass upon the qualifications of applicants for license to practise medicine, etc., can exercise such powers only as are conferred by statutory authority.[50] And where discretion is vested in the board, it cannot be exercised arbitrarily for malevolent or selfish ends,[51] and it cannot be delegated to an organization beyond the limits of the state.[52] Power to accept or reject applications for license to practise medicine, however, though involving the exercise of discretion, is not a judicial power within the meaning of a constitutional provision requiring constitutional powers to be conferred upon judicial officers only.[53] And that a board of medical examiners is not properly organized is no protection against liability for practising medicine without a license, if it acted *de facto;* and its certificate of qualification is a protection from prosecution for violating the statutes;[54] though a surrender of corporate franchises and privileges, and a consequent incapacity to act, may be inferred from an intentional omission to fill vacancies, and elect officers, and a determination to divide assets.[55]

439. Membership in medical societies.—The statutes of some of the states provide for the organization or incorporation of medical societies authorized to determine as to the qualifications and fitness of persons desiring to practise medicine, surgery, etc., and to admit to membership such persons as are found to be duly qualified, and

[48]*State ex rel. State Medical Examiners* v. *District Court,* 26 Mont. 121, 66 Pac. 754.

[49]*Ibid; Williams* v. *Dental Examiners,* 93 Tenn. 619, 27 S. W. 1019.

A grant of authority to a health department, requiring it to permit applicants to register as physicians on satisfactory proof that they are qualified according to law, imposes a duty and discretion upon the department which cannot be interfered with by the court unless abused. *State ex rel. Baldwin* v. *Prendergast,* 8 Ohio C. C. 401.

And where a board of medical examiners has refused to grant a license, the courts have no power, in the absence of statutory authority, to allow the applicant to practise medicine pending his appeal from such refusal. *State ex rel. State Medical Examiners* v. *District Court,* 26 Mont. 121, 66 Pac. 754.

[50]*State ex rel. Johnston* v. *Lutz,* 136 Mo. 633, 38 S. W. 323. And see *State ex rel. Monnier* v. *Board of Pharmacy,* 110 La. 99, 34 So. 159.

[51]*State Dental Examiners* v. *People,* 20 Ill. App. 457; *State* v. *Wilcox,* 64 Kan. 789, 68 Pac. 634.

[52]*Illinois Dental Examiners* v. *People,* 123 Ill. 227, 13 N. E. 201.

[53]*Eastman* v. *State,* 109 Ind. 278, 58 Am. Rep. 400, 10 N. E. 97.

[54]*Bragg* v. *State,* 134 Ala. 165, 58 L. R. A. 925, 32 So. 767.

[55]*United States* v. *Williams,* 5 Cranch, C. C. 62, Fed. Cas. No. 16,713.

to issue diplomas or certificates to them, authorizing them to practise and recover compensation therefor.[56] Generally, both a state society and county societies are provided for, the state society being composed of delegates from the county societies.[57] And every physician and surgeon is required to become a member of the society of his county within a limited time, or forfeit his license.[58] Such societies are authorized to make regulations and by-laws for their government and control,[59] the only restriction being that they must not be contrary to or inconsistent with the Constitution or laws of the state, or of the United States, and that those of the county societies shall not be repugnant to those of the state societies.[60] They may make rules and regulations relative to the admission and expulsion of members;[61] and a fee may be demanded from physicians and surgeons on initiation to the county societies.[62] And they may refuse to admit persons whose acts, character, or qualifications are such that they would not be entitled to retain membership after admission;[63] but those are the only grounds warranting a refusal, and they must be affirmatively established to justify it.[64] The object of such so-

[56] See *Towle* v. *Marrett*, 3 Me. 22, 14 Am. Dec. 206; *Harrison* v. *Jones*, 80 Ala. 412; *People ex rel. Gray* v. *Medical Soc.* 24 Barb. 570; *People ex rel. Coventry* v. *Medical Soc.* 18 Wend. 539; *People ex rel. Dunnel* v. *Medical Soc.* 3 Wend. 426; *Fawcett* v. *Charles*, 13 Wend. 473; *Raynor* v. *State*, 62 Wis. 289, 22 N. W. 430.

[57] See *People ex rel. Dunnel* v. *Medical Soc.* 3 Wend. 426; *People ex rel. Coventry* v. *Medical Soc.* 18 Wend. 539.

A statute providing that each of the colleges of medicine in the state may elect a delegate to represent its college in the medical society of the state applies only to those institutions which have been established for the special purpose of advancing the science of medicine, and does not apply to a college established for instruction in the languages, liberal arts, and sciences, though it has a medical faculty. *People ex rel. Coventry* v. *Medical Soc.* 18 Wend. 539.

[58] *People ex rel. Dunnel* v. *Medical Soc.* 3 Wend. 426.

[59] *Ibid; People ex rel. Gray Medical Soc.* 24 Barb. 570; *Fawcett* v. *Charles*, 13 Wend. 473.

[60] *People ex rel. Dunnel* v. *Medical Soc.* 3 Wend. 426; *People ex rel. Gray* v. *Medical Soc.* 24 Barb. 570.

[61] *People ex rel. Gray* v. *Medical Soc.* 24 Barb. 570; *Fawcett* v. *Charles*, 13 Wend. 473.

Where a university was entitled to confer degrees in surgery and medicine, and a corporation was empowered to summon all persons practising surgery and examine them, and admit or reject them, and, in case they should be contumacious, to impose a certain penalty on them, the granting by the university of degrees in surgery to persons who practised within the bounds would not exempt them from the supervision of the corporation; and the power given to the corporation to impose a penalty upon the contumacious does not prevent it from proceeding against them in a court of law. *University of Glasgow* v. *Faculty of Physicians & Surgeons*, 7 Clark & F. 958.

[62] *People ex rel. Dunnel* v. *Medical Soc.* 3 Wend. 426.

[63] *Ex parte Paine*, 1 Hill, 665.

[64] *People ex rel. Bartlett* v. *Medical Soc.* 32 N. Y. 192.

A medical society cannot refuse membership to a duly qualified applicant because, at an antecedent period before his application, he had not observed certain conventional regulations adopted for the government of the society, by which he had never agreed to abide, and with reference to which he may have been ignorant. *Ibid.*

cieties, however, is the diffusion of science and particularly of the knowledge of the healing art; and the establishment of a tariff of prices for medical services is not a legitimate object of their creation, and is an interference with the private rights of their members, and is invalid.[65] And such societies are not educational associations within the meaning of an exemption of such associations from taxation, though they maintain public medical libraries and reading rooms.[66]

440. Diploma from medical school.—A common provision is that graduates of medical schools or colleges of a designated class shall be entitled on presentation of their diplomas to license to practise without examination. When a right to a license or exemption from examination is conferred on graduates of certain reputable schools, the question of reputability or good standing is not one of law, but of fact, for the board, involving investigation, judgment, and discretion;[67] though the decision must be based upon just and fair principles, and not on personal motives.[68] What is a reasonable limit to the inquiry is a judicial question;[69] and the decision of boards of examiners must not be arbitrary, but must be based on inquiry and fact;[70] the test question being whether or not proper medical knowledge was made to appear.[71] But when, after full and fair examina-

[65] *People ex rel. Gray* v. *Medical Soc.* 24 Barb. 570.

[66] *People ex rel. Medical Soc.* v. *Neff*, 34 App. Div. 83, 53 N. Y. Supp. 1077.

[67] *People ex rel. Sheppard* v. *Illinois Dental Examiners*, 110 Ill. 180; *Dental Examiners* v. *People*, 123 Ill. 227, 13 N. E. 201; *Iowa Eclectic Medical College Asso.* v. *Schrader*, 87 Iowa, 659, 20 L. R. A. 355, 55 N. W. 24; *State ex rel. Kirchgessner* v. *Board of Health*, 53 N. J. L. 594, 22 Atl. 226; *State ex rel. Atty. Gen.* v. *The Hygeia Medical College*, 60 Ohio St. 122, 54 N. E. 86; *Barmore* v. *State Medical Examiners*, 21 Or. 301, 28 Pac. 8; *State ex rel. Coffey* v. *Chittenden*, 112 Wis. 569, 88 N. W. 587.

An act creating a board of dental examiners, and providing that an applicant for license to practise dentistry basing his claim upon a diploma from a reputable dental college is entitled to a license, confers upon the board the power and discretion to determine in case of applicants with diplomas whether they come within the provisions of the law, and whether the diplomas tendered by them emanate from a reputable college. *Williams* v. *Dental Examiners*, 93 Tenn. 619, 27 S. W. 1019.

[68] *Illinois Dental Examiners* v. *People*, 123 Ill. 227, 13 N. E. 201.

Such a decision cannot stand when based upon rivalry between two dental colleges for the patronage of students, with a view to the injury of the one and the assistance of the other. *Ibid.*

[69] *State ex rel. Coffey* v. *Chittenden*, 112 Wis. 569, 88 N. W. 587.

[70] *Iowa Eclectic Medical College Asso.* v *Schrader*, 87 Iowa, 659, 20 L. R. A. 355, 55 N. W. 24.

[71] See *Gage* v. *New Hampshire Medical Soc.* 63 N. H. 92, 56 Am. Rep. 492; *Wright* v. *Lanckton*, 19 Pick. 288.

And an attendance at a medical college for one day only during examination, upon which the person attending received a diploma therefrom, does not make him a graduate in medicine; and the registration of his diploma upon an affidavit showing such fact is not a legal registration which would entitle him to a re-registration under a statute providing therefor, upon proof that he was legally registered under an earlier statute. *Metcalfe* v. *Michigan Bd. of Registration*, 123 Mich. 661, 82 N. W. 512.

And the issue of a diploma by a school of osteopathy to a person who had not

tion, they arrive at a determination, their action will be held to be legal, though the court might have arrived at a different conclusion.[72] When a board has exercised its discretion, however, by adopting a general rule as to what is a reputable school in good standing, it cannot then refuse to act in accordance with it;[73] and where the statute itself defines a reputable or accredited school, the only question is whether or not the school under consideration falls within the definition.[74] What is a reputable school must be determined from the

personally attended the school is a violation of a statute providing that any person having a diploma of any legally chartered school of osteopathy who shall have been in personal attendance for a designated time shall be authorized to treat diseases according to such system after the filing of the diploma for record. *State ex rel. Crow* v. *National School of Osteopathy,* 76 Mo. App. 439.

But a statutory provision requiring three regular courses of lectures in some legally incorporated medical college or colleges as a prerequisite to examination for license does not require that the three entire courses shall have been taken in one college. And the fact that a student attended lectures and passed his examination in certain branches of medicine belonging to the first year's course when he was taking his second year's course of lectures does not exclude him from the benefits of the provisions of the law. *Re Physicians' License,* 5 Pa. Dist. R. 256.

And a board of medical censors cannot refuse to grant a license to practise medicine, under a statute making it the duty of such board to issue licenses when satisfied that the person presenting a diploma has obtained it after pursuing some prescribed course of study and upon due examination, on any other ground than the applicant's lack of medical knowledge, without a trial. *Gaye* v. *New Hampshire Eclectic Medical Soc.* 63 N. H. 92, 56 Am. Rep. 492.

[72]*Iowa Eclectic Medical College Asso.* v. *Schrader,* 87 Iowa, 659, 20 L. R. A. 355, 55 N. W. 24; *Van Vleck* v. *Dental Examiners* (Cal.) 44 L. R. A. 635, 48 Pac. 223.

And where the trustees of a college are authorized to grant an honorary degree of doctor of medicine, and no mode is specially directed in which it shall be done or by which it shall be proved, a vote that the act be done, or the right granted, is an execution of the power; and a duly authenticated copy of the vote is sufficient proof of it. *Wright* v. *Lanekton,* 19 Pick. 288.

[73]*Illinois Dental Examiners* v. *People,* 20 Ill. App. 457; *Illinois Bd. of Health* v. *People,* 102 Ill. App. 614.

While a medical board is not concluded, by having once determined that a school is in good standing, from thereafter determining differently, it has not the power to do so arbitrarily without investigation; and such determination must be based upon inquiry and facts. *Iowa Eclectic Medical College Asso.* v. *Schrader,* 87 Iowa, 659, 20 L. R. A. 355, 55 N. W. 24.

And the issuance by a board of health authorized to issue certificates to practise medicine, on application, to persons holding diplomas from a reputable and legally chartered medical college indorsed by such board, of certificates to practise medicine to graduates of a particular university, in several instances, is, in effect, an indorsement of that university as a reputable and legally chartered medical college. *Boucher* v. *State Bd. of Health,* 19 R. I. 366, 33 Atl. 878.

But it is only when a diploma is presented upon the application to practise medicine that the action of the medical board can be invoked: the board is not bound to determine in advance of an application whether a person holds a diploma from a medical institution of proper standing, or whether a college is in good standing as a medical institution. *State ex rel. Hygea Medical College* v. *Coleman,* 64 Ohio St. 377, 55 L. R. A. 105, 60 N. E. 568.

[74]*Aldenhoven* v. *State,* 42 Tex. Crim. Rep. 6, 56 S. W. 914; *Illinois Dental Examiners* v. *People,* 123 Ill. 227, 13 N. E. 201.

But a graduate of a medical school, applying for license to practise medicine, is in no way affected by the failure of the school to comply with rules adopted by the medical board with reference to what schools shall be considered reputable and in good standing, where

standpoint of men of scientific attainments in the line of work it represents, and not from that of mere laymen;[75] and "reputable" as used in such provisions must be taken in its ordinary sense, and as meaning worthy of repute or distinction, or held in esteem.[76] The burden rests with the candidate to prove the good standing of his school.[77] And if it is a school of another state, its charter must be proved.[78] And though a board has no discretion to refuse a license to a graduate of a proper school, the question as to whether or not the diploma offered by the candidate is genuine, and whether or not it

such rules were adopted after his graduation. *State ex rel. Johnston* v. *Lutz*, 136 Mo. 633, 38 S. W. 323.

A statute prescribing the standard of scholarship to be maintained by medical schools, the diplomas of which will be accepted by the state board of medical examiners, as that prescribed from time to time by a designated association of medical colleges, establishes the standard with sufficient definiteness and certainty. *Ex parte Gerino* (Cal.) 77 Pac. 166.

[75]*State ex rel. Coffey* v. *Chittenden*, 112 Wis. 569, 88 N. W. 587. An see *Townshend* v. *Gray*, 62 Vt. 373, 8 L. R. A. 112, 19 Atl. 635.

Knowledge of therapeutics, materia medica, and surgery, lies at the base of medical instruction; and a school of osteopathy which teaches neither surgery, bacteriology, materia medica, nor therapeutics, and relies entirely upon the manipulation of the body for the cure of diseases, is not a reputable medical college within the meaning of a statute prohibiting the practice of medicine without a certificate from the state board of health, issued to the holder of a diploma of a reputable medical college legally chartered by law. *Nelson* v. *State Bd. of Health*, 108 Ky. 769, 50 L. R. A. 383, 57 S. W. 501.

[76]*State ex rel. Coffey* v. *Chittenden*, 112 Wis. 569, 88 N. W. 587.

"Good standing," as used in a statute providing that the state board of health shall issue certificates to all who shall furnish satisfactory proof of having received diplomas or licenses from legally chartered medical institutions in good standing, means good reputation, and must be proved in the same way as reputation; and the board of health cannot establish a rule of its own by which good standing is to be shown. *State ex rel. Johnston* v. *Lutz*, 136 Mo. 633, 38 S. W. 323.

And evidence establishing the nonreputability of a medical college at one time is proper to be considered on the question of its reputability at a time thirteen months thereafter, and is sufficient to warrant the board in finding its nonreputability at a subsequent time, that being a condition which, when once established, is presumed to continue indefinitely, so that the lapse of time only weakens the force of the presumption as evidence. *State ex rel. Coffey* v. *Chittenden*, 112 Wis. 569, 88 N. W. 587.

[77]*Ibid.*

A parchment purporting to be a diploma of a medical college is not *per se* proof, in an action to recover for medical services, that it was a regularly constituted medical institution. *Hill* v. *Boddie*, 2 Stew. & P. (Ala.) 56.

And the contents of an order on the records of a college, showing the grant of a diploma, must be proved by an examined copy, and not by a parol testimony of an officer. *Halliday* v. *Butt*, 40 Ala. 178.

But evidence that a person attended an institution three terms of three months each, and that there were lectures on medicine and medical studies, and that all branches of surgery were taught, and that there was a large number of students, and that he completed his course and paid for a diploma,—is sufficient to lay the foundation for the introduction of the diploma in evidence, for the purpose of establishing that he has received a medical degree. *Holmes* v. *Halde*, 74 Me. 28, 43 Am. Rep. 567.

[78]*Parkerson* v. *Burke*, 59 Ga. 100; *Hunter* v. *Blount*, 27 Ga. 76; *Smith* v. *Kentucky Dental Examiners*, 24 Ky. L. Rep. 25, 67 S. W. 999. *Contra*, *Halliday* v. *Butt*, 40 Ala. 178.

was issued by an authorized school, is one for its decision.[79] A graduate who has acquired the learning and received the training required by a medical school, a diploma from which is required to warrant his admission to practise, is not deprived of the right by the fact that by reason of some accident or oversight his diploma has never been actually received by him.[80]

441. Examinations.—The policy of the law generally has been to encourage collegiate medical education as a prerequisite to medical practice, an examination as to fitness being usually required only when a diploma from a reputable medical school could not be produced. So effectual has this policy been that there has been but little call on the courts to declare the law with reference to examinations. It is thought, however, that, in analogy with the rules with reference to other similar examinations, the discretion of the board of examiners is absolute, both as to methods of examination and the result, so long as it is honestly and fairly exercised with a view to ascertaining fitness.[81] But examinations are deemed for the benefit of both the public and the candidate, so that "may" has been construed to mean "must," in a statute providing for the examination of college graduates.[82]

442. Previous practice.—A statutory provision entitling one to a certificate, or exempting one from examination as to his competency as a physician or surgeon who has previously practised a stated time, refers to legal practice, and does not include practice in violation of law.[83] A practitioner within the meaning of such provisions is one

[79] *Smith* v. *Kentucky Dental Examiners*, 24 Ky. L. Rep. 25, 67 S. W. 999; *Townshend* v. *Gray*, 62 Vt. 373, 8 L. R. A. 112, 19 Atl. 635.

It is proper to compare the seal of a medical institution, and signatures of officers thereof to a diploma, with the seal and signatures attached to a diploma received from the same institution, on the question of the genuineness of the instrument, although the witness never saw the officers write their names. *Finch* v. *Gridley*, 25 Wend. 469.

[80] *Rider* v. *Ashland County*, 87 Wis. 160, 58 N. W. 236.

And where a physician has lost his diploma, its grant may be shown by the testimony of an officer of the medical college by which it was granted. *Halliday* v. *Butt*, 40 Ala. 178.

[81] Where the statute provides that a board of dental examiners shall grant a certificate of proficiency in the knowledge and practice of dentistry to all applicants who shall undergo a satisfactory examination, and receive a majority of the votes of the board upon such proficiency, the courts cannot intervene and direct the board to issue a certificate to one held by a majority of the board not to have passed a satisfactory examination. *Ewbank* v. *Turner* (N. C.) 46 S. E. 508.

[82] *State* v. *Knowles*, 90 Md. 646, 49 L. R. A. 695, 45 Atl. 877.

[83] *State* v. *Wilson*, 61 Kan. 791, 60 Pac. 1054; *Nicholson* v. *State*, 100 Ala. 132, 14 So. 746; *Driscoll* v. *Com.* 93 Ky. 393, 20 S. W. 431; *Hargan* v. *Purdy*, 93 Ky. 424, 20 S. W. 432; *State* v. *Vandersluis*, 42 Minn. 129, 6 L. R. A. 119, 43 N. W. 789; *State ex rel. Eberts* v. *Ohio Medical Board*, 60 Ohio St. 21, 53 N. E. 298; *State ex rel. Smith* v. *Dental Examiners*, 31 Wash. 492, 72 Pac. 110.

who habitually holds himself out for the practice of the profession;[84] and it is immaterial whether the services rendered during such period were gratuitous or for compensation;[85] and the practice is usually required to have taken place before the act took effect.[86] When the statute also provides for the refusal or revocation of certificates for incompetency, the applicant is not *ipso facto* entitled to a certificate on proof of the requisite period of practice; the board may inquire as to his competency, and refuse a certificate for palpable incompetency.[87] But power to refuse or revoke certificates for dishonorable or unprofessional conduct applies only to applicants admitted on examination or certificates of the board, and not to those seeking admission on the ground of previous practice under statutes by which they are not regarded as having been licensed by the board, but by the statutory enactment itself.[88] Whenever application is made for a certificate of admission to practise, on the ground that the applicant has practised medicine for the required period, the regent or board must determine whether the applicant is a physician or surgeon, and whether he was engaged in the practice at the time and for the period required; and, in performing its duty, the regent or board acts in a

[84]*Hart* v. *Folsom*, 70 N. H. 213, 47 Atl. 603. And see *Queen* v. *General Council of Medical Education* [1897] 2 Q. B. 203, 66 L. J. Q. B. N. S. 588, 76 L. T. N. S. 706, 46 Week. Rep. 2; *Pacquin* v. *State Bd. of Health* (R. I.) 33 Atl. 870.

Proof that a person, alleged to have practised as a physician, gave a bottle of medicine to a person, together with contradictory evidence pro and con as to other acts of practice, is not sufficient to show practice of five consecutive years, which would entitle him to a license. *Ranald* v. *State* (Tex. Crim. App.) 47 S. W. 976.

In a statute prohibiting any person from practising medicine or surgery without a certificate of qualification, but providing that it shall not apply to any physician who has practised in the state for the past five years, the words "any person practising medicine or surgery" and "any physician" refer to one of the same class of persons, and are used interchangeably. *Harrison* v. *State*, 102 Ala. 171, 15 So. 563.

[85]*Wert* v. *Clutter*, 37 Ohio St. 347.

[86]*State* v. *Wilson*, 62 Kan. 621, 52 L. R. A. 679, 64 Pac. 23; *Chicago* v. *Honey*, 10 Ill. App. 535. And see *Maddox* v. *Boswell*, 30 Ga. 38; *Com.* v. *Wasson* (Pa.) 3 Crim. L. Mag. 726. *Contra*, *Wert* v. *Clutter*, 37 Ohio St. 347.

And the rule is the same though the practice was in another state. *State* v. *Wilson*, 62 Kan. 621, 52 L. R. A. 679, 64 Pac. 23.

But only those physicians and surgeons who were in practice in the state when the act was passed are entitled to registration under a statute conferring the right upon every person who was a practitioner of medicine and surgery in the state prior to the passage of the act. *Hart* v. *Folsom*, 70 N. H. 213, 47 Atl. 603. But see *State* v. *Francis*, 8 Mo. App. 584, Appx.

[87]*State* v. *Mosher*, 78 Iowa, 321, 43 N. W. 202; *State ex rel. Burroughs* v. *Webster*, 150 Ind. 607, 41 L. R. A. 212, 50 N. E. 750.

[88]*Williams* v. *People*, 121 Ill. 84, 11 N. E. 181.

And an applicant for admission to practise medicine is entitled to be heard on an investigation as to his conduct, before being refused a certificate upon the ground that he was guilty of unprofessional and dishonorable conduct. *State ex rel. Powell* v. *State Medical Examining Board*, 32 Minn. 324, 50 Am. Rep. 575, 20 N. W. 238.

judicial capacity, and is bound to receive and consider all evidence legally bearing upon the questions.[89] And, in order to be exempt from the penal provisions of such acts, proper evidence of the previous practice must have been presented to the board by the applicant, and a certificate obtained.[90] These provisions do not confer illegal special privileges on persons who have previously practised;[91] and they are superseded by subsequent general legislation requiring an examination by a medical board.[92]

443. License from another state.—Each state acts independently in the matter of licensing the practice of medicine; and the recognition by one state of a previous qualification to practise medicine does not carry with it a vested right to practise in another state.[93] But where licenses are issued to physicians or surgeons holding licenses from medical boards in other states requiring substantially the same acquirements, the board or council is entitled, before issuing a certificate, to exercise its judgment and discretion on the question as to the similarity of the acquirements.[94] A provision in a statute, however, that nothing therein contained shall affect the rights and privileges of persons holding certificates issued to them prior to that act, refers to certificates issued by the board of that state, and does not apply to a certificate from a board of another state.[95] And a statutory provision giving a state board of medical examiners jurisdiction for certain purposes over persons coming into the state, only applies to persons coming into the state with a view to engage in the practice of medicine or surgery relying upon a diploma obtained elsewhere,

[89] *Hart* v. *Folsom*, 70 N. H. 213, 47 Atl. 603.

[90] *State* v. *Mosher*, 78 Iowa, 321, 43 N. W. 202.

And a physician seeking to recover for medical services, under a statute prohibiting practising without a license, but excepting persons who have received a diploma from any regularly constituted medical institution, and who have engaged in the practice of medicine within two years previous, must, if he has no license, bring himself within both provisos by proving, not only the possession of a diploma, but that he has engaged in the practice within two years previous. *Hill* v. *Boddie*, 2 Stew. & P. (Ala.) 56.

[91] *Williams* v. *People*, 121 Ill. 84, 11 N. E. 881.

[92] *Allopathic Medical Examiners* v. *Fowler*, 50 La. Ann. 1358, 24 So. 809; *State Bd. of Health* v. *Ross*, 191 Ill. 87, 60 N. E. 811.

[93] *Allopathic Medical Examiners* v. *Fowler*, 50 La. Ann. 1358, 24 So. 809.

[94] *Ludwig* v. *Medical Council*, 2 Dauphin Co. Rep. 243. And see *Ex parte Gerino* (Cal.) 77 Pac. 166.

And the certificate of the secretary of a medical board of another state, which board had issued a license to a physician, alleging that the standard of acquirement adopted by that state was essentially the same as that adopted in another, is not conclusive on the question of the issue of a license to the physician thereon in the latter state. *Ludwig* v. *Medical Council*, 2 Dauphin Co. Rep. 243.

[95] *Knowles* v. *State*, 87 Md. 204, 39 Atl. 619.

and not to residents of the state who have obtained a diploma elsewhere and returned to the state.[96]

444. Registration.—Probably for protection of the public against pretenders and empirics not authorized to practise medicine, certificates authorizing the practice of medicine are frequently required to be registered or recorded in some public office. The registry under such a requirement is a public record under the control of the courts;[97] and, as a general rule, a registration in the county of one's residence, and where he intends to practise, authorizes him to practise anywhere in the state.[98] And the requirement applies to all desiring to practise, without reference to the source from which authority to do so was obtained;[99] and it is mandatory, and not directory, so that a license is not efficacious without compliance.[100] And where the purpose of the statute is to confine the practice of medicine to graduates of institutions of accredited repute, and a saving clause permits another designated class of persons to continue in the business provided they register within a designated time, a failure upon the part of one of such class to register within the designated time deprives him of the right to future registration, and of his right to

[96] *State ex rel. Robbs* v. *Talley*, 28 S. C. 589, 6 S. E. 824.

Where an applicant for permission to practise medicine presents himself with a diploma from another state, without the indorsement required by law, he has no authority to inquire into the validity of the reasons of any medical institution for refusing to indorse the diploma; it is enough for him to justify a refusal to register if no indorsements appear. *Re Bauer* (Pa.) 3 Cent. Rep. 157, 4 Atl. 913.

[97] *Re Campbell*, 197 Pa. 581, 47 Atl. 860.

The court of common pleas has jurisdiction to strike out a name improperly registered. *Ibid.*

[98] See *Martino* v. *Kirk*, 55 Hun, 474, 8 N. Y. Supp. 758; *Fishblate* v. *McCullough*, 9 Pa. Super. Ct. 147; *Com.* v. *Townley*, 22 Pa. Co. Ct. 11.

But the mere fact of a person being registered by the county clerk in the medical register is not conclusive of his authority to practise medicine, the authenticity and validity of his diploma, as well as the verity and sufficiency of the facts stated in his affidavit as to the length of time practised, may be called in question. *Hargan* v. *Purdy*, 93 Ky. 424, 20 S. W. 432.

[99] *Dogge* v. *State*, 17 Neb. 140, 22 N. W. 348.

But a statutory provision that a practitioner must either have been licensed in the manner therein provided, or have had a degree, and that a person licensed to practise physic or surgery shall deposit a copy of such license, requires the deposit in case of a license only, and does not require it in case of a degree. *Wright* v. *Lockton*, 19 Pick. 288.

[100] *Nicholson* v. *State*, 100 Ala. 132, 14 So. 746.

A statute requiring every person engaged in the practice of dentistry to cause his name and residence or place of business to be registered within six months from the date of the passage of the act refers to the date when it went into effect, and not to the date of its approval. *Patrick* v. *Perryman*, 52 Ill. App. 514.

A law making a physician's certificate conclusive as to the right of the holder to practise medicine, but providing, further, that every such person shall have his certificate recorded in the office of the clerk of the county in which he resides, does not make the recording a condition precedent to the right to practise medicine, or recover compensa-

practise, without reference to his qualifications.[1] A physician duly registered in the district of his own residence and practice, however, is not bound to register in another district before he can answer a call for his services in the latter district, when he does not make a business of practising in it.[2] And an inadvertent registration in a wrong place or office of a certificate or license authorizing the licensee to practise medicine, under a statute requiring such registration, falls within general statutes providing that a subsequent registration shall make valid a previous imperfect registration, so that a subsequent registration would be a defense in an action for a penalty for failure to register.[3] But to obtain such subsequent registration, the physician must submit satisfactory proof that he had all the requirements prescribed by law at the time of the imperfect registration.[4] And one who, having duly qualified and performed all the conditions upon his part, practises, laboring under the mistake that his certificate has been filed for record, cannot be held criminally responsible for practising illegally, where the mistake was that of another, and did not arise from a want of proper care upon his part.[5]

445. Locality and duration.—The granting of a license to practise medicine, etc., is a state matter, and, as a general rule, the locality within which the license may be acted upon is coextensive with the state; and though there are several boards in a state, a license from any board entitles the licensee to practise anywhere in the state, in the absence of statutory restriction.[6] In some of the states, however,

tion for his services rendered in such practice. *Riley* v. *Collins*, 16 Colo. App. 280, 64 Pac. 1052.

[1] *Re Wadel*, 25 Pa. Co. Ct. 60.

[2] *Riley* v. *Collins*, 16 Colo. App. 280, 64 Pac. 1052.

[3] *New York* v. *Bigelow*, 13 Misc. 42, 34 N. Y. Supp. 92.

And the registration of a regent's certificate, under a statute providing that, if any person whose registration is not legal because of some error, misunderstanding, or unintentional omission, shall submit satisfactory proof that he had all the requirements prescribed by law at the time of his imperfect registration, and was entitled to be legally registered, he may, on unanimous recommendation of the state board of medical examiners, receive from the regents a new certificate of the facts, which may be registered, and so make valid the previous imperfect registration,—validates the previous registration from the date of its filing, and wipes out all liabilities to prosecution for misdemeanors committed by one practising during the time of imperfect registration, and renders legal the practitioner's contracts or employment. *Ottaway* v. *Lowden*, 172 N. Y. 129, 64 N. E. 812.

[4] *New York* v. *Bigelow*, 13 Misc. 42, 34 N. Y. Supp. 92.

[5] *Pettit* v. *State*, 28 Tex. App. 24, 14 S. W. 127; *Price* v. *State*, 40 Tex. Crim. Rep. 428, 50 S. W. 700; *Parish* v. *Foss*, 75 Ga. 439.

And a conviction cannot be had, under a statute making it an offense to practise medicine without a license or diploma or certificate of qualification, or by one not a regular graduate of a medical college in the state, having had his diploma legally recorded, against a physician who had obtained a diploma from a medical college in another state, although he had not had it recorded in the county in which he practised. *Stough* v. *State*, 88 Ala. 234, 7 So. 150.

[6] *Derrick* v. *State*, 34 Tex. Crim. Rep. 21, 28 S. W. 818. And see *Martino* v. *Kirk*, 55 Hun, 474, 8 N. Y. Supp. 758;

a license is good only in the county of the licensee's residence.[7] And, as a general rule, a license to practise is permanent unless revoked;[8] but in some of the states a provision exists for the granting of temporary certificates to entitle physicians, etc., to practise until the next regular meeting of the board,[9] under which the power of the board is exhausted upon the granting of one such license.[10] But a statutory provision permitting a single member of the board of physicians to grant temporary licenses to applicants to practise medicine, such temporary licenses to continue until the next meeting of the board, does not confine a member of the board to the granting of a single license, but permits the granting of successive licenses; and a physician to whom such successive licenses have been granted is duly licensed and entitled to recover compensation for his services as such.[11]

446. Regulation of itinerants.—A number of states have statutory enactments intended to prevent itinerant physicians from going from county to county and practising medicine, or anyone from traveling from county to county vending drugs, nostrums, or appliances of any kind intended for the treatment of diseases or injuries, except on payment of a special tax.[12] Such provisions are not unconstitutional;[13] but they apply only to persons traveling from place to place,

Fishblate v. *McCullough*, 9 Pa. Super. Ct. 147; *Com.* v. *Townley*, 22 Pa. Co. Ct. 11, 7 Pa. Dist. R. 413.

[7] *Orr* v. *Meek*, 111 Ind. 40, 11 N. E. 787; *Hilliard* v. *State*, 7 Tex. App. 69.

Where a statute provides that a certificate issued by the board, when presented to the proper clerk, shall entitle the holder to a license to practise in the state, and upon presentation of the certificate to the clerk of the county in which the applicant resides, he shall receive a license to practise, if the practitioner changes his residence from one county to another, he must obtain a new license in the county where he proposes to reside. *Mayfield* v. *Nale*, 26 Ind. App. 240, 59 N. E. 415.

[8] See *McPherson* v. *Cheadell*, 24 Wend. 15. *Atty. Gen.* v. *Royal College of Physicians*, 1 Johns. & H. 561, 7 Jur. N. S. 511, 4 L. T. N. S. 356, 30 L. J. Ch. N. S. 757, 9 Week. Rep. 590.

[9] See *Peterson* v. *Seagraves*, 94 Tex. 390, 60 S. W. 751.

[10] *Ibid.*

And the passage of an act regulating the practice of dentistry and pharmacy, expressly forbidding an issuance of more than one temporary certificate to the same person, is not to be taken as a legislative construction of a previous act to the effect that under it the issue of the second or third temporary certificate was warranted. *Ibid.*

[11] *Wragg* v. *Strickland*, 36 Ga. 559.

[12] See *State* v. *Ragland*, 31 W. Va. 454, 7 S. E. 424; *People use of State Bd. of Health* v. *Blue Mountain Joe*, 129 Ill. 370, 21 N. E. 923; *Snyder* v. *Closson*, 84 Iowa, 184, 50 N. W. 678; *State* v. *Bair*, 92 Iowa, 28, 60 N. W. 486; *State ex rel. Wynne* v. *Lee*, 106 La. 400, 31 So. 14; *Moore* v. *Bradford County*, 148 Pa. 343, 23 Atl. 896; *Com.* v. *Townley*, 22 Pa. Co. Ct. 11; *Hairston* v. *State*, 36 Tex. Crim. Rep. 470, 37 S. W. 858.

The requirement in Pennsylvania of a license fee of $50 of a physician opening a transient office in one of the counties was repealed by the act of June 8, 1881. *Peebles* v. *Wayne County*, 10 Pa. Co. Ct. 69.

[13] *State* v. *Bair*, 92 Iowa, 28, 60 N. W. 486; *State use of Iowa Commission of Pharmacy* v. *Gouss*, 85 Iowa, 21, 51 N. W. 1147; *People use of State Bd. of Health* v. *Blue Mountain Joe*, 129 Ill.

pursuing their vocation in an itinerant method.[14] They do not apply to a physician or specialist who has several places of business and spends part of his time at each.[15] And such taxes are periodical; and nonpayment of a tax for one year cannot be used in support of a prosecution for practising as an itinerant without payment of that of another year.[16] But a manufacturer of, and dealer in, proprietary medicines, though having a permanent factory and residence in one county, who goes about to other counties attending fairs for the purpose of advertising and introducing his medicines, publicly recommending them as a cure for certain diseases, is an itinerant;[17] and so is one who goes about selling medicines represented to be of his own preparation, and a cure for certain diseases if taken according to directions, though he publicly declared that he was not practising medicine or treating diseases.[18] And authority to practise medicine does not authorize the itinerant vending of medicines or drugs.[19] The

370, 21 N. E. 923; *State ex rel. Wynne* v. *Lee*, 106 La. 400, 31 So. 14.

And an act providing that transient and itinerant practitioners of medicine or surgery shall take out licenses and pay a fee therefor into the county treasury is not repealed by an act providing for the registration of all practitioners of medicine or surgery. *Moore* v. *Bradford County*, 148 Pa. 343, 23 Atl. 896.

[14]*Hairston* v. *State*, 36 Tex. Crim. Rep. 470, 37 S. W. 858.

To constitute an itinerant physician or vendor of drugs, it is not necessary that a person should travel all the time and have no fixed place of sale; he may have a place of business where he sells his goods during a part of the time, and travel for the sale of his medicines at other times. *Synder* v. *Closson*, 84 Iowa, 184, 50 N. W. 678.

And a statutory provision requiring persons who reside or sojourn in a county to register before they can lawfully practise medicine there, and defining a sojourner to be any person opening an office, or appointing any place where he may meet patients or receive calls, is not restricted to physicians residing out of the state, but includes all physicians, wherever they may reside. *Ege* v. *Com.* 20 W. N. C. 73, 9 Atl. 471.

[15]*Hairston* v. *State*, 36 Tex. Crim. Rep. 470, 37 S. W. 858; *Adams* v. *State* (Tex. Crim. App.) 78 S. W. 935: *Broiles* v. *State* (Tex. Crim. App.) 68 S. W. 685; *Com.* v. *Townley*, 22 Pa. Co. Ct. 11, 7 Pa. Dist. R. 413.

But a physician duly registered, residing and practising in one county, having also an office in another county to which the public was invited by advertisement, and at which business was done, not upon special calls for his services, but of the same kind as was done at his place of residence, receiving and prescribing for patients, attending professionally all persons who asked for his services, making charges and receiving payment therefor, is a sojourner within the meaning of a statute requiring sojourners to register before they can lawfully pursue their profession. *Ege* v. *Com.* 20 W. N. C. 73, 9 Atl. 471.

[16]*Howe* v. *State* (Tex. Crim. App.) 78 S. W. 1064.

[17]*Snyder* v. *Closson*, 84 Iowa, 184, 50 N. W. 678; *Evans* v. *State Bd. of Health*, 19 R. I. 312, 33 Atl. 878.

[18]*State* v. *Ragland*, 31 W. Va. 453, 7 S. E. 424; *People use of State Bd. of Health* v. *Blue Mountain Joe*, 129 Ill. 370, 21 N. E. 923.

It is the professing to cure or treat diseases that constitutes the offense of practising as an itinerant vendor of drugs without a license, and this may be done by one or many writings; and an indictment for the offense, charging the commission of the offense by writing, is not bad for duplicity as charging several offenses because more than one writing was used. *State* v. *Bair*, 92 Iowa, 28, 60 N. W. 486.

[19]*State use of Iowa Commission of Pharmacy* v. *Gouss*, 85 Iowa, 21, 51 N. W. 1147.

But one who advertised his skill as a

question whether or not one was an intinerant physician or vendor of drugs is one of fact to be determined by the jury, in view of all the facts and circumstances proved.[20]

III. Withdrawal of right to practise.

447. Revocation of licenses.—Statutes with reference to licensing physicians and surgeons, etc., providing for medical examining boards, usually authorize such boards, in a proper case, to revoke licenses, as well as to issue them. The more usual grounds upon which a revocation is authorized are unprofessional or dishonorable conduct,[21] conviction of a felony,[22] and that the license was obtained by fraud or misrepresentation.[23] Such provisions are not unconsti-

physician and nothing more, and undertook to effect cures for a named consideration, is not a traveling or itinerant vendor of drugs, within the meaning of a statute prohibiting an itinerant vending of drugs without a license, if he did not write a prescription to be put up at the drug store, but used his own medicines. *State* v. *Bonham*, 96 Iowa, 252, 65 N. W. 154.

[20] *People use of State Bd. of Health* v. *Blue Mountain Joe*, 129 Ill. 370, 21 N. E. 923.

A statement of the county attorney in argument in a prosecution for pursuing the occupation of a medical specialist traveling from place to place without having paid the license tax therefor, that they are trying a man who has been indicted all over the country, is improper and prejudicial to defendant's rights. *Howe* v. *State* (Tex. Crim. App.) 78 S. W. 1064.

[21] See *People use of State Bd. of Health* v. *McCoy*, 125 Ill. 289, 17 N. E. 786; *State ex rel. Burroughs* v. *Webster*, 150 Ind. 607, 41 L. R. A. 212, 50 N. E. 750; *Meffert* v. *State Bd. of Medical Registration*, 66 Kan. 710, 72 Pac. 247; *State* v. *Schultz*, 11 Mont. 429, 28 Pac. 643; *State* v. *Weyerhorst*, 11 Mont. 434, 28 Pac. 644; *State ex rel. Baldwin* v. *Kellogg*, 14 Mont. 426, 36 Pac. 957.

[22] See *Hawker* v. *New York*, 170 U. S. 189, 42 L. ed. 1002, 18 Sup. Ct. Rep. 573.

Legislation to the effect that one who has been convicted of a crime should no longer engage in the practice of medicine does not constitute an additional punishment or an *ex post facto* law, but legally prescribes the qualifications for the physician and the appropriate evidence of such qualifications. *Hawker* v. *New York*, 170 U. S. 189, 42 L. ed. 1002, 18 Sup. Ct. Rep. 573, Affirming *People* v. *Hawker*, 152 N. Y. 234, 46 N. E. 607.

And a state board of medical examiners, authorized to refuse a certificate to any person who has been convicted of felony in the practice of his profession, and to revoke the certificate for palpable incompetency, may, after granting a certificate, make inquiry as to the competency of the holder, and, if incompetent, revoke it. *State* v. *Mosher*, 78 Iowa, 321, 43 N. W. 202.

So, the application of the provisions of a statute authorizing a revocation of a physician's license for grossly immoral conduct to a person whose habits were grossly immoral before the passage of the law is not in the nature of a punishment so as to render the statute illegal as an *ex post facto* law. *Meffert* v. *State Bd. of Medical Registration*, 66 Kan. 710, 72 Pac. 247.

[23] See *Curryer* v. *Oliver*, 27 Ind. App. 424, 60 N. E. 364, 61 N. E. 593; *State ex rel. Walker* v. *Green*, 112 Ind. 462, 14 N. E. 352; *Re Washington* (Q. B. D.) 23 Ont. Rep. 299.

The official interest of the secretary of the state board of health in complaints made by him to the board for violation of a law with reference to the practice of medicine, and for the revocation of the certificate of the party in fault, is not such as warrants quashing the proceedings for the revocation of the certificate, on account of his participation therein. *State Bd. of Health* v. *Roy*, 22 R. I. 538, 48 Atl. 802.

tutional.[24] And the revocation of licenses of physicians, etc., for unprofessional or dishonorable conduct, is not a judicial function, and may be properly conferred on a board of medical examiners;[25] and when authorized by statute, it cannot be prevented by prohibition.[26] But a statute authorizing a revocation must have a reasonable construction;[27] and the power cannot be exercised unless plainly conferred;[28] and the board cannot act from caprice or without cause; and the conduct must have been such as would in common judgment be deemed dishonorable or unprofessional.[29] Representations calculated to deceive and defraud the public constitute dishonorable and unprofessional conduct within these rules.[30] And it

[24]*Hawker* v. *New York*, 170 U. S. 189, 42 L. ed. 1002, 18 Sup. Ct. Rep. 573; *People* v. *Hawker*, 152 N. Y. 234, 46 N. E. 607; *State ex rel. Chapman* v. *State Medical Examiners*, 34 Minn. 387, 26 N. W. 123.

But a physician's license to practise is a right or estate entitled to protection; and a statute authorizing a state board of health to revoke such a license for grossly unprofessional conduct liable to deceive or defraud the public, without fixing any standard by which such fact shall be determined, is void. *Matthews* v. *Murphy*, 23 Ky. L. Rep. 750, 54 L. R. A. 415, 63 S. W. 785.

[25]*State ex rel. Chapman* v. *State Medical Examiners*, 34 Minn. 387, 26 N. W. 123.

[26]*Ibid.*

Where there is evidence upon which a general council of medical education can reasonably hold that a registered medical practitioner has been guilty of infamous conduct in a professional capacity, the decision of the board under a statute giving it power to erase the name of the practitioner in such case from the register is final, and cannot be reviewed by the court. *Allinson* v. *General Council of Medical Education* [1894] 1 Q. B. 750; 63 L. J. Q. B. N. S. 534, 58 J. P. 542, 9 Reports, 217, 70 L. T. N. S. 471, 42 Week. Rep. 289; *Allbutt* v. *General Council of Medical Education*, L. R. 23 Q. B. Div. 400, 58 L. J. Q. B. N. S. 606, 61 L. T. N. S. 585, 37 Week Rep. 771, 54 J. P. 36.

[27]*People use of State Bd. of Health* v. *McCoy*, 125 Ill. 289, 17 N. E. 786.

A statutory provision that a medical board may revoke physicians' certificates for unprofessional or dishonorable conduct, and that a diploma and certificate shall be conclusive as to the right of the holder to practise medicine, gives power to the board to revoke certificates of only those persons who are not graduates in medicine. *Williams* v. *People*, 17 Ill. App. 274, Affirmed in 121 Ill. 84, 11 N. E. 881.

And one that any person, who, after conviction of a felony, shall practise, or attempt to practise, medicine, is guilty of a misdemeanor, has reference only to misdemeanors committed after the passage of the act; but, as to the felony charged as the former offense, it has reference to those committed before as well as after the passage of the act. *People* v. *Hawker*, 152 N. Y. 234, 46 N. E. 607.

And one purporting by its title to be a complete revision of the subject-matter of the practice of medicine, and which was intended as a substitute for the previous statute, providing that the state board of health may refuse to issue certificates for unprofessional or dishonorable conduct and may revoke such certificates for like causes, confers no power upon the board to revoke certificates of persons who had been licensed to practise medicine prior to the date it took effect. *State Bd. of Health* v. *Ross*, 191 Ill. 87, 60 N. E. 811.

[28]*Ex parte Partridge*, L. R. 19 Q. B. Div. 467, 36 Week. Rep. 442; *Matthews* v. *Murphy*, 23 Ky. L. Rep. 750, 54 L. R. A. 415, 63 S. W. 785.

[29]*People use of State Bd. of Health* v. *McCoy*, 125 Ill. 289, 17 N. E. 786; *Allinson* v. *General Council of Medical Education* [1894] 1 Q. B. 750, 63 L. J. Q. B. N. S. 534, 9 Reports, 217, 70 L. T. N. S. 471, 42 Week. Rep. 289, 58 J. P. 542.

[30]*People use of State Bd. of Health* v. *McCoy*, 125 Ill. 289, 17 N. E. 786, Affirming 30 Ill. App. 272; *State ex rel. Feller* v. *State Medical Examiners*, 34

is immaterial whether the misconduct was committed before or after registration;[31] and such provisions apply to registered practitioners who are convicted of a criminal offense.[32] Revocation of a license, without due notice to the accused of the proceedings against him, and an opportunity to be heard, is fatally defective;[33] and previous criminal prosecution or acquittal for the same act does not affect it as a ground for revocation of a license or expulsion from a medical society.[34]

448. Expulsion from society.—Medical societies are bodies corporate, and have the power of amotion or expulsion of their members for cause, as an incident to their constitutions.[35] And laws providing for the expulsion of physicians from medical societies, and the abrogation of their licenses in case of gross ignorance, or misconduct in their profession, or when guilty of immoral conduct or habits, are valid and constitutional.[36] But the power of amotion is not arbi-

Minn. 391, 26 N. W. 125; *Re Washington* (Q. B. D.) 23 Ont. Rep. 299. And see *Curryer* v. *Oliver*, 27 Ind. App. 424, 60 N. E. 364, 61 N. E. 593; *State* v. *Stewart* (Wash.) 72 Pac. 1026.

But a harmless advertisement by a physician of his wonderful attainments and successes is not sufficient to warrant a revocation of his license for unprofessional or dishonorable conduct. *People use of State Bd. of Health* v. *McCoy*, 125 Ill. 289, 17 N. E. 786.

And it is not immoral, dishonorable, or unprofessional conduct for a physician, on request, to conceal the fact that one of his patients had innocently suffered a miscarriage; or to refuse to reveal innocent, noncriminal secrets of his patients, when requested not to do so, and when advised that he was not required to. *State ex rel. Baldwin* v. *Kellogg*, 14 Mont. 426, 36 Pac. 957.

[31]*Queen* v. *General Council of Medical Education*, 3 El. & El. 524, 30 L. J. Q. B. N. S. 201, 7 Jur. N. S. 798, 3 L. T. N. S. 692, 9 Week. Rep. 413.

One who obtains a certificate to practise medicine by misrepresentation and fraud in palming off upon the state board of health a diploma issued to another, as one issued to himself, is guilty of unprofessional conduct warranting a revocation of his license; the rule that the unprofessional conduct must occur after the granting of the certificate having no application. *State Bd. of Health* v. *Roy*, 22 R. I. 538, 48 Atl. 802.

[32]*Queen* v. *General Council of Medical Education*, 3 El. & El. 524, 30 L. J. Q. B. N. S. 201, 7 Jur. N. S. 798, 3 L. T. N. S. 692, 9 Week. Rep. 413.

[33]*People use of State Bd. of Health* v. *McCoy*, 125 Ill. 289, 17 N. E. 786; *State* v. *Schultz*, 11 Mont. 429, 28 Pac. 643; *Gage* v. *New Hampshire Eclectic Medical Soc.* 63 N. H. 92, 56 Am. Rep. 493.

But where a physician gets himself licensed to practise on the strength of a diploma from a college in another state, and he disregards a notice of the medical board to show cause why his license should not be revoked as having been procured by fraud in presenting a spurious diploma, an affidavit of the secretary of the college purporting to have issued the diploma that none had ever been granted to such a person is sufficient evidence to warrant a revocation. *Stevens* v. *Hill*, 74 Vt. 164, 52 Atl. 437.

[34]*Re Campbell*, 197 Pa. 581, 47 Atl. 860; *Re Smith*, 10 Wend. 449.

[35]*Fawcett* v. *Charles*, 13 Wend. 473.

[36]*Re Smith*, 10 Wend. 449.

A constitutional provision forbidding the creation of courts proceeding differently from courts of common law refers to courts exercising the usual jurisdiction of courts of law, but proceeding by modes unknown to the common law, and does not apply to provisions giving to medical societies the right to try any of their members against whom specific charges of gross ignorance or misconduct in their profession, or of immoral conduct or habits may be brought. *Ibid.*

trary and unlimited.[37] And it cannot be exercised without a previous conviction or indictment in a criminal court for the offense charged, unless it relates merely to the official or corporate character of the accused, and amounts to a breach of the condition expressly or tacitly annexed to his franchise.[38] And, in such case, to warrant an amotion the member must have been guilty of an offense against his duty to the corporation, or of acts calculated to destroy it or its liberties and privileges.[39] A society cannot expel a member because he did not possess the requisite qualifications, and obtained his admission by false pretenses.[40] A medical society is not precluded from preferring charges against a physician by the fact that the same charges have been previously made and not sustained.[41]

IV. Procedure of medical boards.

449. Methods generally.—The legislature, as the lawmaking power, has authority to prescribe the methods of procedure of boards of medical examiners.[42] And it alone is to judge of what is wise and expedient, both as to the qualifications required and as to the method of ascertaining them, the courts having no supervisory power so long as the legislature keeps within the Constitution.[43] Where the statute does not prescribe the practice to be followed, the proceeding should be conducted in such an orderly manner that no substantial

[37] *People ex rel. Gray* v. *Medical Soc.* 24 Barb. 570.

[38] *Fawcett* v. *Charles*, 13 Wend. 473.

[39] *People ex rel. Gray* v. *Medical Soc.* 24 Barb. 570.

The act of a physician in publishing a professional advertisement, the contents of which were not inconsistent with perfect good faith on his part, referring to treatment in a special branch of his profession which he had adopted, though contrary to the rules of the medical society to which he belonged, is not such an act as would warrant his immediate expulsion, where he had no notice of the existence of such rules. *People ex rel. Bartlett* v. *Medical Soc.* 32 N. Y. 192.

[40] *Fawcett* v. *Charles*, 13 Wend. 473.

And where a county medical society attempts to expel a member on the ground of want of requisite qualifications, and that he obtained his admission by false pretenses, the attempt being without jurisdiction, a resolution adopted and entered among its proceedings, expelling a member for such cause, is a libel, for which the member introducing it is liable. *Ibid.*

Where a medical society has expelled a member under an illegal and void regulation, mandamus will lie to compel his restoration and recognition as a member. *People ex rel. Gray* v. *Medical Soc.* 24 Barb. 570.

[41] *Re Smith*, 10 Wend. 449.

[42] *Wilkins* v. *State*, 113 Ind. 514, 16 N. E. 192.

[43] *Ibid.*; *Eastman* v. *State*, 109 Ind. 278, 58 Am. Rep. 400, 10 N. E. 97.

The findings of a medical board whose duty it is to determine any complaint against any person holding a physician's license, on the question of the revocation of the license of a physician, are conclusive upon the court, in the absence of fraud, corruption, or oppression. *Meffert* v. *State Bd. of Medical Registration*, 66 Kan. 710, 72 Pac. 247.

right would be denied.[44] And the time and place of meeting of boards of medical examiners are to be fixed by the persons in whom the law has vested the authority; and one who desires a license must, at least, make reasonable inquiry, since he is given notice by a public law.[45] But, although they should and do follow, to some extent, the methods of the courts, from their nature and the character of the duties required, a more flexible practice must of necessity be followed in some cases; and any evidence which tends to prove or disprove competency may be considered, though it is not the best evidence, and not evidence admissible in a proceeding before a judicial tribunal.[46] The accused in a prosecution for the revocation must be given a fair opportunity to meet the charges and evidence against him.[47] But such a proceeding is not one of the class of cases in which a jury trial is reserved by the Constitution.[48] The expenses incident to the trial of a proceeding to have a medical license revoked are not recoverable at common law; and a right to recover them must be founded on the statute; and costs and disbursements cannot be allowed in the absence of statutory authority.[49]

450. Review of determination of board.—The power or discretion of medical examiners to reject applicants for licenses to practise medicine is not arbitrary, but must be based on the learning and qualifications of the applicant,[50] and is subject to correction in case of abuse.[51]

[44]*State ex rel. Kellogg* v. *District Court*, 13 Mont. 370, 34 Pac. 298.

But a board of medical examiners will not be restrained by injunction from discharging its appropriate functions because of its organization without notice to some of its members, where the statute does not impose upon any of the members of the board the duty of notifying the others. *Howard* v. *Parker*, 49 Tex. 236.

[45]*Wilkins* v. *State*, 113 Ind. 514, 16 N. E. 192.

[46]*Traer* v. *State Medical Examiners*, 106 Iowa, 559, 76 N. W. 853.

A medical board is composed of physicians, and not persons learned in the law; and pleadings in proceedings before it should not be too strictly construed; and too close observance of the science of pleading should not be required, though a complaint must set forth the facts which constitute an offense. *State ex rel. Baldwin* v. *Kellogg*, 14 Mont. 426, 36 Pac. 957.

[47]*Traer* v. *State Medical Examiners*, 106 Iowa, 559, 76 N. W. 853; *State* v. *Schultz*, 11 Mont. 429, 28 Pac. 643.

A proceeding for the purpose of revoking a license of a regularly admitted and practising physician for unprofessional and dishonorable conduct is quasi criminal in its nature, and the state is properly made a party thereto. *State ex rel. Beekman* v. *Estes*, 34 Or. 196, 51 Pac. 77, 52 Pac. 571, 55 Pac. 25.

And where the state has been made a party to such a proceeding for unprofessional and dishonorable conduct, service of notice of appeal therein on the state is sufficient; service of the notice on the relators or the board is not necessary to the jurisdiction of the court on appeal. *Ibid.*

[48]*State Bd. of Health* v. *Roy*, 22 R. I. 538, 48 Atl. 802; *Re Smith*, 10 Wend. 449.

[49]*State ex rel. Beekman* v. *Estes*, 34 Or. 206, 51 Pac. 77, 52 Pac. 571, 55 Pac. 25.

[50]*State* v. *Fleischer*, 41 Minn. 69, 42 N. W. 696. And see *Iowa Eclectic Medical College Asso.* v. *Schrader*, 87 Iowa. 659, 20 L. R. A. 355, 55 N. W. 24; *State ex rel. Hathaway* v. *State Bd. of Health*, 103 Mo. 22, 15 S. W. 322; *Gee Wo* v. *State*, 36 Neb. 241, 54 N. W. 513.

[51]*Allopathic Medical Examiners* v. *Fowler*, 50 La. Ann. 1358, 24 So. 809.

But the proceedings of a board of

In case of the arbitrary refusal of a certificate by such a board, mandamus to compel them to act is a proper remedy.[52] And the remedy is the same where the student has completed his medical course, and is arbitrarily refused an examination and degree;[53] or in case of the abuse of the discretionary powers of a state board of dental examiners.[54] So the same rules apply to the revocation of licenses of physicians for unprofessional or dishonorable conduct, a revocation not being authorized for anything short of conduct which would, in common judgment, be unprofessional or dishonorable.[55] And when a board has found all the facts necessary to a judgment, so that the judgment is nothing but a conclusion of law upon the facts, the entering of the judgment is in its nature ministerial, and may be compelled by mandamus.[56] But where the board has not absolutely refused to act, or acted on improper motives, but has acted in matters involving the exercise of its discretion, its action cannot be brought into review by mandamus.[57] And a determination, after

medical examiners in refusing a license to practise to an applicant cannot be reviewed by the court after the board has been dissolved, where no proceeding was taken at the time to compel it by mandamus to act. *Miller* v. *Medical Board*, 33 Or. 5, 52 Pac. 763.

[52]*Harding* v. *People*, 10 Colo. 387, 15 Pac. 727; *People ex rel. Sheppard* v. *Illinois Dental Examiners*, 110 Ill. 180; *Illinois Dental Examiners* v. *People*, 20 Ill. App. 457; *Gage* v. *New Hampshire Eclectic Medical Soc.* 63 N. H. 92, 52 Am. Rep. 492; *State ex rel. Hathaway* v. *State Bd. of Health*, 103 Mo. 22, 15 S. W. 322. And see *State ex rel. Monnier* v. *Board of Pharmacy*, 110 La. 99, 34 So. 159.

But allegations that a certain institution was a reputable college, and that sufficient evidence of that fact was at the command of the board of dental examiners to whom a diploma from that college was presented, and that the petitioner furnished evidence satisfactory to the board,—are not sufficient to show that the board found these facts, so as to make a petition for mandamus good on demurrer. *Van Vleck* v. *Dental Examiners* (Cal.) 44 L. R. A. 635, 48 Pac. 223.

[53]*People ex rel. Cecil* v. *Bellevue Hospital Medical College*, 60 Hun, 107, 14 N. Y. Supp. 490. And see *State Bd. of Pharmacy* v. *White*, 84 Ky. 626, 2 S. W. 225.

[54]*Illinois Dental Examiners* v. *People*, 123 Ill. 227, 13 N. E. 201; *Ewbank* v. *Turner* (N. C.) 46 S. E. 508.

[55]*People use of State Bd. of Health* v. *McCoy*, 125 Ill. 289, 17 N. E. 786; *State ex rel. Hathaway* v. *State Bd. of Health*, 103 Mo. 22, 15 S. W. 322.

[56]*Illinois Dental Examiners* v. *People*, 20 Ill. App. 457.

[57]*State ex rel. Powell* v. *State Medical Examining Board*, 32 Minn. 324, 50 Am. Rep. 575, 20 N. W. 238; *Van Vleck* v. *Dental Examiners* (Cal.) 44 L. R. A. 635, 48 Pac. 223; *People ex rel. Sheppard* v. *Illinois Dental Examiners*, 110 Ill. 180; *Illinois Bd. of Health* v. *People*, 102 Ill. App. 614; *Smith* v. *Kentucky Dental Examiners*, 24 Ky. L. Rep. 25, 67 S. W. 999; *State ex rel. Kirchgessner* v. *Board of Health*, 53 N. J. L. 594, 22 Atl. 226; *Barmore* v. *State Medical Examiners*, 21 Or. 301, 28 Pac. 8; *Williams* v. *Dental Examiners*, 93 Tenn. 619, 27 S. W. 1019; *State ex rel. Coffey* v. *Chittenden*, 112 Wis. 569, 88 N. W. 587; *Ex parte Lamert*, 33 L. J. Q. B. N. S. 69, 4 Best. & S. 582, 9 L. T. N. S. 410, 12 Week. Rep. 201; *Allbutt* v. *General Council of Medical Education*, L. R. 23 Q. B. Div. 400, 58 L. J. Q. B. N. S. 606, 61 L. T. N. S. 585, 37 Week. Rep. 771, 54 J. P. 36.

Where a medical practitioner after due inquiry is adjudged by the general council of medical education to have been guilty of infamous conduct in a professional respect, and it has erased his name from the register, under a stat-

full and fair examination, that a medical or dental college is not in good standing, so as to authorize the issue of medical certificates upon its diplomas, because its teachings are not up to the minimum requirements, is not reviewable by the courts.[58] And where the statute provides a plain and adequate remedy by appeal to a court from a decision of a board of examiners, mandamus will not lie to compel them to act.[59] And where a licensee was entitled to a license, the courts will not interfere to ascertain whether he was entitled to it in the way procured or in some other way.[60] Neither can the action of a medical board with reference to the granting or annulling of a certificate be corrected by certiorari, when it did not act arbi-

ute authorizing such erasure for such conduct, mandamus will not lie to restore it. *Ex parte La Mert*, 4 Best & S. 582, 33 L. J. Q. B. N. S. 69, 9 L. T. N. S. 410, 12 Week. Rep. 201.

And where a registrar of a medical council inserts in the register of a medical practitioner a degree, which the evidence produced by the claimant did not show that he was entitled to, and afterwards, by order of the council and without notice to the party, the registrar strikes out the degree, mandamus will not lie to compel the registrar to reinsert it. *Queen* v. *Steele*, 13 Ir. C. L. Rep. 398.

[58]*Iowa Eclectic Medical College Asso.* v. *Schrader*, 87 Iowa, 659, 20 L. R. A. 355, 55 N. W. 24; *Van Vleck* v. *Dental Examiners* (Cal.) 44 L. R. A. 635, 48 Pac. 223; *People ex rel. Sheppard* v. *Illinois Dental Examiners*, 110 Ill. 180; *State ex rel. Granville* v. *Gregory*, 83 Mo. 123, 53 Am. Rep. 565; *State ex rel. Kirchgessner* v. *Board of Health*, 53 N. J. L. 594, 22 Atl. 226; *Ewbanks* v. *Turner* (N. C.) 46 S. E. 508.

Mandamus will not issue on the relation of a medical college to compel a state board of medical registration and examination to recognize the medical college as a medical institution in good standing, in the absence of the presentation of a diploma and a demand for a license. *State ex rel. Hygea Medical College* v. *Coleman*, 64 Ohio St. 377, 55 L. R. A. 105, 60 N. E. 568.

Nor will it lie to require a state board of medical examiners to issue to one a license to practise medicine, under a statute entitling graduates holding diplomas issued by any college of established reputation in the state which has a four years' course to such a license, though he had taken a full course in a medical college, where the course of such college was for only three years. *Moore* v. *Napier*, 64 S. C. 564, 42 S. E. 997.

[59]*State ex rel. Narcross* v. *Medical Examiners*, 10 Mont. 162, 25 Pac. 440; *State ex rel. Seres* v. *District Court*, 19 Mont. 501, 48 Pac. 1104. And see *State ex rel. Kellogg* v. *District Court*, 13 Mont. 370, 34 Pac. 298; *State ex rel. Riddell* v. *District Court*, 27 Mont. 103, 69 Pac. 710.

But a statute providing that an information may be prosecuted for the purpose of annulling any letters patent, certificate, or deed issued by the state authorities, when obtained by fraud, relates to real estate transactions, and not to licenses issued to physicians to practise medicine. *State ex rel. Walker* v. *Green*, 112 Ind. 462, 14 N. E. 352.

And where the legislature has prescribed the conditions precedent upon the fulfilment of which one may begin to practise medicine, by providing for a license by a medical board, there is no power upon the part of the court, under a statute providing generally, that an appeal may be taken from the decision of the board refusing or revoking a certificate, and that in case of an appeal from a decision revoking a certificate the appellant may be permitted, in the discretion of the court, to practise during the pendency of the appeal, to permit an applicant whose application for a license has been denied, to practise during the pendency of an appeal from such denial. *State ex rel. State Medical Examiners* v. *District Court*, 26 Mont. 121, 66 Pac. 754.

[60]*Weeden* v. *Arnold*, 5 Okla. 578, 49 Pac. 915.

trarily or unreasonably.[61] Nor can the decision of such a board, whether right or wrong, be annulled by injunction;[62] and an information in the nature of a quo warranto cannot be brought against a licensee to annul his license.[63] The validity and effect of an appeal from a determination of a board of medical examiners refusing a license is not affected by the fact that the board allowed the appeal to go by default.[64]

V. What constitutes practice of medicine.

451. General rules and definitions.—The practice of medicine as ordinarily and popularly understood has relation to the art of preventing, curing, or alleviating disease or pain.[65] One practising medicine practises the art of preventing, curing, or alleviating diseases, and remedying, so far as possible, the results of violence and accident;[66] and any person who, under any pretense, operates or professes to heal or prescribe for, or otherwise treats, any physical or mental ailment of another, practises medicine.[67] The practice of medicine consists in the application of the knowledge of medicine, of diseases, and of the laws of health.[68] It is not necessary to the practice of medicine that it be confined to the giving of internal remedies.[69] And it applies to surgery, as well as to the giving of medicine.[70] And, in the

[61] *Traer* v. *State Medical Examiners*, 106 Iowa, 559, 76 N. W. 833.

[62] *Lincoln Medical College* v. *Poynter*, 60 Neb. 228, 82 N. W. 855.

[63] *State ex rel. Walker* v. *Green*, 112 Ind. 462, 14 N. E. 352.

[64] *State ex rel. Riddell* v. *District Court*, 27 Mont. 103, 69 Pac. 710.

[65] *State* v. *Mylod*, 20 R. I. 632, 41 L. R. A. 428, 40 Atl. 753.

[66] *Stewart* v. *Raab*, 55 Minn. 20, 56 N. W. 256.

[67] *State* v. *Buswell*, 40 Neb. 158, 24 L. R. A. 68, 58 N. W. 728; *State* v. *Paul*, 56 Neb. 369, 76 N. W. 861; *Richardson* v. *State*, 47 Ark. 562, 2 S. W. 187; *Matthei* v. *Wooley*, 69 Ill. App. 654; *Bibber* v. *Simpson*, 59 Me. 181; *Andrews* v. *Styrap*, 26 L. T. N. S. 704; *Provincial Medical Board* v. *Bond*, 22 N. S. 153.

[68] *People use of State Bd. of Health* v. *Blue Mountain Joe*, 129 Ill. 370, 21 N. E. 923; *Adams County* v. *Cole*, 9 Ind. App. 474, 36 N. E. 912; *Antle* v. *State*, 6 Tex. App. 202.

[69] *Davidson* v. *Bohlman*, 37 Mo. App. 576.

But one attending sick persons, who neither prescribed nor administered any medicine nor gave any advice, his treatment consisting of merely sitting still and fixing his eyes on the patient, did not practise medicine contrary to a statute prohibiting such practice without a license, though he received payment therefor. *Reg.* v. *Stewart*, 17 Ont. Rep. 4.

[70] *Stewart* v. *Raab*, 55 Minn. 20, 56 N. W. 256; *Little* v. *State*, 60 Neb. 749, 51 L. R. A. 717, 84 N. W. 248. And see *Davies* v. *Makuna*, 54 L. J. Ch. N. S. 1148, L. R. 29 Ch. Div. 596, 53 L. T. N. S. 314, 33 Week. Rep. 668, 50 J. P. 5.

Proof that the accused acted either as a physician or surgeon is sufficient to support a complaint charging him with illegally holding himself out as a physician and surgeon. *Com.* v. *St. Pierre*, 175 Mass. 48, 55 N. E. 482.

Where a person is licensed as a surgeon only, however, he may administer medicines in the cure of a surgical case, without being subject to penalties for practising as an apothecary without having obtained a certificate; but he has no right to do so in the case of internal diseases not requiring surgical treatment. *Apothecaries Soc.* v. *Lotinga*, 2 Moody & R. 495.

absence of express or implied statutory requirements, it is not necessary that the practice should have been for reward or compensation.[71] Practising for reward or compensation, however, is expressly included in many of the statutory prohibitions.[72] And under such provisions one who does not solicit patronage, and does not hold himself out as a physician, or pretend to be one, but simply advises or gives medicine to a sick neighbor or friend, making no charge and expecting no compensation, does not practise medicine.[73] Nor is it a violation of regulations of the practice of medicine to prescribe for, or render other medical or surgical services to, another gratuitously in an emergency.[74] But the emergency must be one in which the exigency is so pressing that some kind of action must be taken before a physician or surgeon can be procured; it is not enough that the sick person has been given up as incurable by regular physicians.[75]

452. Vending medicines or appliances.—A vendor of medicine or appliances who does not pretend to diagnose diseases and determine which of his remedies is proper in a particular case is not a practitioner of medicine within a statute prohibiting the practice of medicine without a license,[76] though he indicates what particular medicine will cure a designated disease.[77] But a person who claims to be a physician, and holds himself out to the world as such, and examines patients who ask for his professional services, diagnosing the disease and giving prescriptions, is a practitioner of medicine within such a

[71] *State* v. *Welch*, 129 N. C. 579, 40 S. E. 120.

Where the statute makes it unlawful to practise medicine or surgery without having registered a certificate of the state board of health, but imposes a penalty only where the practice of medicine or surgery was for reward or compensation, there can be no conviction in a criminal prosecution thereunder, unless the accused received a reward or compensation. *State* v. *Pirlot*, 20 R. I. 273, 38 Atl. 656.

[72] See *State* v. *Pirlot*, 20 R. I. 273, 38 Atl. 656; *State* v. *Hale*, 15 Mo. 606; *State* v. *Paul*, 56 Neb. 369, 76 N. W. 861; *McCann* v. *State*, 40 Tex. Crim. Rep. 111, 48 S. W. 512; *State* v. *Wilcox*, 64 Kan. 789, 68 Pac. 634.

And where by statutory definition the words "practise medicine" embrace the idea of exacting compensation, an indictment charging that the accused did unlawfully practise medicine, and expressly negativing his having any of the qualifications essential to the lawful practice of medicine, set forth in the statute, is good in substance, and will support a conviction though there was no allegation that the accused received or intended to receive compensation. *Blalock* v. *State*, 112 Ga. 338, 37 S. E. 361.

[73] *Nelson* v. *State*, 97 Ala. 79, 12 So. 421.

[74] *State* v. *Paul*, 56 Neb. 369, 76 N. W. 861; *Greenfield* v. *Gilman*, 140 N. Y. 168, 35 N. E. 435.

[75] *People* v. *Lee Wah*, 71 Cal. 80, 11 Pac. 851.

The repeal of a law prohibiting the practice of medicine without a license does not give validity to a contract for medical services entered into during the existence of the repealed law. *Mays* v. *Williams*, 27 Ala. 267.

[76] *State* v. *Van Doran*, 109 N. C. 864, 14 S. E. 32; *People* v. *Lehr*, 93 Ill. App. 505, Affirmed in 196 Ill. 361, 63 N. E. 725; *Queen* v. *Coulson*, 24 Ont. Rep. 246, 1 Can. Crim. Cas. 114.

[77] *Queen* v. *Coulson*, 24 Ont. Rep. 246, 1 Can. Crim. Cas. 114.

statute,[78] though the medicine administered is a proprietary remedy prepared and sold by himself.[79] And it is not necessary that one acting as a physician should have claimed or advertised himself to be a regular legal or competent practitioner.[80] The true question for the jury is, Did he administer the drugs, medicines, or appliances as a physician, or sell them as a druggist?[81] Nor is it material whether he exercises his skill, or attempts to exercise skill, upon one patient or upon a greater number.[82] The rule is different, however, though the vendor gives advice gratuitously as to the medicine which he sells, where he expressly states at the time that he is not a physician;[83] though the mere fact that no charge was made in addition to the ordinary price of the remedy does not prevent the act from constituting practising medicine.[84] Nor does a patent securing the exclusive right to manufacture and use certain medicines authorize the patentee to prescribe and administer them in the character of a physician, without being licensed as such.[85] So, the fact that one is a practising physician, registered as such, gives him no right to sell drugs or patent medicines to one not his patient, without having taken out a license as a druggist; and this rule is not affected by a provision of the druggist law that nothing therein shall apply to or in-

[78] *State* v. *Van Doran*, 109 N. C. 864, 14 S. E. 32; *Payne* v. *State* (Tenn.) 79 S. W. 1025; *Reg.* v. *Howarth*, 24 Ont. Rep. 561; *Queen* v. *Barnfield*, 4 B. C. 305, 3 Can. Crim. Cas. 161; *Reg.* v. *Coulson*, 27 Ont. Rep. 59; *Apothecaries Co.* v. *Nottingham*, 34 L. T. N. S. 76. And see *Davis* v. *Cassidy*, 23 Ky. L. Rep. 955, 64 S. W. 633.

The fact that a druggist was registered under an act which entitled him to act as an apothecary as well as a druggist does not authorize him to practise medicine. *Reg.* v. *Howarth*, 24 Ont. Rep. 561.

And one who leased and occupied rooms for several months for the declared purpose of practising dentistry, and who did dental work for three or more persons, and at times engaged in filling teeth and at others at dental work at the bench, must be regarded as having engaged in the practice of dentistry within the meaning of a statutory provision prohibiting it without a license. *Ferner* v. *State*, 151 Ind. 247, 51 N. E. 360.

[79] *State* v. *Van Doran*, 109 N. C. 864, 14 S. E. 32.

[80] *State* v. *Paul*, 56 Neb. 369, 76 N. W. 861.

[81] *Holland* v. *Adams*, 21 Ala. 680.

[82] *Adams County* v. *Cole*, 9 Ind. App. 474, 36 N. E. 912.

But the words "act or practise as an apothecary," in a statutory provision making one liable to a penalty for every offense of acting or practising as such, are directed against an habitual or continuous course of conduct; and where one without a certificate supplies medicine to three different persons at different times on the same day, he is liable for but one penalty. *Apothecaries Co.* v. *Jones* [1893] 1 Q. B. 93, 67 L. T. N. S. 677, 41 Week. Rep. 267, 17 Cox, C. C. 588, 5 Reports, 101, 57 J. P. 56.

[83] *Com.* v. *St. Pierre*, 175 Mass. 48, 55 N. E. 482; *People use of State Bd. of Health* v. *Smith*, 208 Ill. 31, 69 N. E. 810, Affirming 108 Ill. App. 499.

And in such case his declarations, accompanying such acts, that he was not a physician, are admissible in a prosecution for illegally practising, as a part of the *res gestæ*. *Com.* v. *St. Pierre*, 175 Mass. 48, 55 N. E. 482.

[84] *Reg.* v. *Howarth*, 24 Ont. Rep. 561, 1 Can. Crim. Cas. 14. But see *College of Physicians* v. *Rose*, 6 Mod. 44; *Reg.* v. *Hall*, 8 Ont. Rep. 407.

[85] *Jordan* v. *Dayton*, 4 Ohio, 295; *Thompson* v. *Staats*, 15 Wend. 395.

terfere with the business of any practising physician who does not keep open shop for the dispensing or compounding of medicines.[86] And a covenant not to engage in the practice of medicine in a given locality does not prevent the covenantor from becoming a druggist.[87]

453. Holding out as a physician.—The practice of medicine embraces any holding out of one's self habitually to persons employing him, as a professor of the art of healing diseases;[88] and this is the rule though he claims to cure but a single disease or addiction.[89] And the card of one who gives a bottle of medicine to a patient with "Dr." preceding his name is prima facie evidence that he was practising medicine at the time.[90] The assumption of the title "doctor," however, is not unlawful, if not prohibited or penalized by statute.[91] And the use of the title "doctor" to which one is entitled is not unlawful, though the source of it was such that it did not entitle him to practise medicine.[92] And a statutory definition of practising medi-

[86]*People* v. *Moorman*, 86 Mich. 433, 49 N. W. 263; *Com.* v. *Hovious*, 112 Ky. 491, 66 S. W. 3. And see *Suffolk County* v. *Shaw*, 21 App. Div. 146, 47 N. Y. Supp. 349.

A statute prohibiting the sale or giving away of opium and other prohibited drugs except on prescription from some physician, and requiring that physicians or pharmacists who prescribe opium or any of the drugs named shall keep a record thereof open to public inspection, does not permit a practising physician to deal out such drugs without a prescription. *State* v. *Jones*, 18 Or. 256, 22 Pac. 840.

But the exemption provided for in a statute prohibiting the practice of pharmacy by persons not having a license, but providing that it shall not apply to the business of a practitioner of medicine who is not the proprietor of a drug store, so as to prevent him from supplying his patients with such articles as he may deem proper, is not confined to the compounding of drugs and the filling of prescriptions done in a physician's own business or practise, but permits a physician casually to fill a prescription made by another physician, and to compound the drugs necessary therefor. *Suffolk County* v. *Shaw*, 21 App. Div. 146, 47 N. Y. Supp. 349.

[87]*Greenfield* v. *Gilman*, 140 N. Y. 168, 35 N. E. 435.

[88]*Davidson* v. *Bohlman*, 37 Mo. App. 576; *Matthei* v. *Wooley*, 69 Ill. App. 654; *Benham* v. *State*, 116 Ind. 112, 18 N. E. 454; *People* v. *Phippin*, 70 Mich. 6, 37 N. W. 888; *Musser* v. *Chase*, 29 Ohio St. 577.

A magnetic healer who styles himself "professor," and holds himself out to the public as a healer of disease, and whose treatment in the case in question consisted in holding an affected limb and rubbing it, is within the terms of a statute requiring a license of persons who announce to the public a readiness to cure disease, or who use in connection with their names any word intended to designate them as practitioners of medicine in any of its branches. *Parks* v. *State*, 159 Ind. 211, 59 L. R. A. 190, 64 N. E. 862.

[89]*Benham* v. *State*, 116 Ind. 112, 18 N. E. 454.

[90]*Mayer* v. *State*, 64 N. J. L. 325, 45 Atl. 624.

[91]*State* v. *Mylod*, 20 R. I. 632, 41 L. R. A. 430, 40 Atl. 753.

[92]*Carpenter* v. *Hamilton*, 37 L. T. N. S. 157; *Hunter* v. *Clare* [1899] 1 Q. B. 635, 68 L. J. Q. B. N. S. 278, 80 L. T. N. S. 197, 47 Week. Rep. 394, 63 J. P. 308; *Ellis* v. *Kelly*, 6 Hurlst. & N. 222, 30 L. J. Mag. Cas. N. S. 35, 6 Jur. N. S. 1113, 3 L. T. N. S. 331, 9 Week. Rep. 56.

So, proof that a man's name was engraved upon the door of his residence, and that upon another plate in the same frame was the name of another, who was a duly qualified medical practitioner, with the addition of the words "Surgeon, Accoucheur, etc.," and that on another door was written the word "Surgery," and on a lamp over the door ap-

cine including any person who shall profess publicly to be a physician and to prescribe for the sick, or who shall append to his name the letters "M. D.," does not include persons prescribing moral doctrine for the cure of disease, such as Christian Scientists.[93]

454. Action under supervision of another.—A person professing to heal or prescribe for another, or otherwise treat any physical or mental ailment for remuneration, is not relieved from the operation of a statutory prohibition against practising without a license, by the fact that the operations were performed, and the medicines were administered and given, under the direction and charge of a licensed physician and surgeon.[94] But students are usually permitted to prescribe and act under the supervision of regularly licensed preceptors.[95] And an unqualified person may carry on the business of a physician, apothecary, or surgeon, if he does so by means of duly qualified assistants, and does not himself act personally in any of those capacities.[96]

455. Acting as specialist.—Statutory provisions prohibiting the practice of the medical art without a license are intended to prevent the practice of any branch, either of the medical or surgical art, by unskilful or unlearned persons, though they pretend to practise for particular diseases or particular organs only, and not as general physicians or surgeons.[97] And one who holds himself out as an oculist, or eye

peared the words "Surgeon, Accoucheur," is not sufficient to warrant a conviction against the former for falsely pretending to be a surgeon. *Pedgrift* v. *Chevallier*, 8 C. B. N. S. 246, 29 L. J. Mag. Cas. N. S. 225, 6 Jur. N. S. 1341, 2 L. T. N. S. 360, 8 Week. Rep. 500.

[93] *Kansas City* v. *Baird*, 92 Mo. App. 204.

[94] *State* v. *Paul*, 56 Neb. 369, 76 N. W. 861.

[95] See *Williams* v. *People*, 20 Ill. App. 92.

The performance of dental work, and charging and receiving pay therefor for the performer's own use, however, constitute the practice of dentistry within the meaning of a statute prohibiting the practice of dentistry without a certificate from the board of examiners, though the work was done as a mere student, under the direction of a licensed dentist. *State* v. *Reed*, 68 Ark. 331, 58 S. W. 40.

[96] *Davies* v. *Makuna*, 54 L. J. Ch. N. S. 1148, L. R. 29 Ch. Div. 596, 53 L. T. N. S. 314, 33 Week. Rep. 668, 50 J. P. 5.

But, while an agreement between a qualified medical practitioner and an unqualified person, in which the unqualified person described himself as a medical practitioner, the agreement being that the medical practitioner was to serve him in his professional capacity, might not be invalidated by false description, under a statutory provision imposing a fine upon any person wilfully and fraudulently pretending to use the name or title of physician or doctor of medicine, if such unqualified person, in the prosecution of business under contract, attended patients in the way in which a medical practitioner ordinarily attends them, and in fact acted as an apothecary, the agreement will be taken to have been made in the prosecution of an illegal business, and therefore void. *Ibid.*

[97] *United States* v. *Williams*, 5 Cranch, C. C. 62, Fed. Cas. No. 16,713.

A specialist in the treatment of diseases is a physician or surgeon who applies himself to the study and practice of some particular branch of his profession. *Baker* v. *Hancock*, 29 Ind. App. 456, 63 N. E. 323, 64 N. E. 38.

And surgery and obstetrics as popularly understood are embraced in the

specialist, holds himself out as a physician and surgeon within a statutory prohibition against such holding out without a license.[98] But the business of an optician, consisting of making spectacles to fit the eyes, is not within a statutory provision prohibiting the unlicensed practice of medicine or surgery, whether his spectacles are ground generally for the trade or specially for each customer.[99] And dentistry is not the practice of medicine or included in the idea,[100] though a physician or surgeon may practise dentistry so far as it is incidental to his business as a physician or surgeon;[1] and the courts have refused to regard a dentist as a mechanic, the tools of whose trade are exempt from execution.[2] The practice of midwifery, however, is an important department of medicine, and is included, unless expressly excepted, in provisions regulating the practice of medicine.[3]

456. Christian Science.—The practice of Christian Science, consisting of prayer for divine assistance, and the encouragement and direction of the thoughts of the patient, without recommending or administering any drug or medicine, or giving him any course of physical treatment, is not practising medicine or surgery under a statute defining the practice of medicine or surgery to be the prescribing, directing, or recommending any drug or medicine or other

title of an act regulating the practice of medicine. *Little* v. *State*, 60 Neb. 749, 51 L. R. A. 717, 84 N. W. 248.

[98]*Com.* v. *St. Pierre*, 175 Mass. 48, 55 N. E. 482.

And the giving of advice, and the application of external remedies to the eye, is not the practice of the medical, but rather of the surgical, art, within the meaning of a prohibition against practising medicine without a license. *United States* v. *Williams*, 5 Cranch, C. C. 62, Fed. Cas. No. 16,713.

[99]*Smith* v. *People*, 92 Ill. App. 22; *People use of State Bd. of Health* v. *Smith*, 208 Ill. 31, 69 N. E. 810.

An advertisement by an optician engaged in making spectacles to fit the eye, asking persons afflicted with spots before the eyes, blurring, inflammation, granulation, cataract, dizziness, headaches, etc., to call immediately, and stating that he had given universal satisfaction, is not a profession to treat physical ailment or deformity, within the meaning of a statute requiring a license in case of such profession, where he did not state an intention to give surgical or medical treatment. *Ibid.*

[100]*People* v. *Phippin*, 70 Mich. 6, 37 N. W. 888; *Cherokee City* v. *Perkins*, 118 Iowa, 405, 92 N. W. 68.

[1]*State* v. *Vandersluis*, 42 Minn. 129, 6 L. R. A. 119, 43 N. W. 789; *State ex rel. Flickinger* v. *Fisher*, 119 Mo. 344, 22 L. R. A. 799, 24 S. W. 167.

Authority to practise medicine and surgery includes the right to practise dentistry as a branch of surgery, without a compliance upon the part of the surgeon with the requirements of a law as to the practice of dentistry. *State* v. *Beck*, 21 R. I. 288, 45 L. R. A. 269, 43 Atl. 366.

[2]*Whitcomb* v. *Reid*, 31 Miss. 567, 66 Am. Dec. 579. *Contra*, *Maxon* v. *Perrott*, 17 Mich. 332, 97 Am. Dec. 191.

And a dentist, though having a diploma from a regular dental college, and on the roll of dental surgeons, and registered according to law, is not exempt from jury duty as a practitioner of medicine. *State ex rel. Flickinger* v. *Fisher*, 119 Mo. 344, 22 L. R. A. 799, 24 S. W. 167.

[3]*People use of State Bd. of Health* v. *Arendt*, 60 Ill. App. 89; *State* v. *Welch*, 129 N. C. 579, 40 S. E. 120.

agency for treatment or relief of wounds, infirmities, or diseases.[4] And it has been held that such practice is not in violation of a statute prohibiting the practice of medicine or surgery, without defining it, in any of its branches, without a license.[5] The contrary rule, however, that a system of healing diseases without a knowledge of anatomy, physiology, pathology, or hygiene, based upon the theory that all diseases are mere beliefs and not real facts, is at variance with a statutory requirement of certain educational qualifications for the practice of medicine or surgery, and opposed to the general policy of the law relative to the existence and treatment of disease, has been announced.[6] And the practice of Christian Science as a medium of healing, without a license, has been held to be a violation of a law requiring a license for the treatment of physical or mental ailments.[7]

457. Osteopathy.—The system of rubbing and kneading the body, commonly called "osteopathy," is comprehended within the practice of medicine defined by statute as consisting of prescribing or recommending any drug, medicine, application, or treatment for the relief of injury, infirmity, or disease.[8] And osteopathy is the practice of medicine within the meaning of a general act regulating the practice of medicine and treating human ailments,[9] which renders the

[4] *Evans* v. *State*, 9 Ohio S. & C. P. Dec. 222, 6 Ohio N. P. 129.

But a court cannot take judicial notice of what the system known as Christian Science is. And an information charging a person with having prescribed and recommended Christian Science does not sufficiently describe the offense and show that it was forbidden by a statute, where it does not indicate that Christian Science is either a drug, medicine, or other agency of the kind described by law. *Evans* v. *State*, 9 Ohio S. & C. P. Dec. 222, 6 Ohio N. P. 129.

[5] *State* v. *Mylod*, 20 R. I. 632, 41 L. R. A. 428, 40 Atl. 753. And see *Reg.* v. *Stewart*, 17 Ont. Rep. 4.

[6] *Re First Church of Christ*, 205 Pa. 543, 63 L. R. A. 411, 97 Am. St. Rep. 753, 55 Atl. 536, Affirming 6 Pa. Dist. R. 745.

And the same has been held with reference to the professional services of a medical clairvoyant. *Bibber* v. *Simpson*, 59 Me. 181.

[7] *State* v. *Buswell*, 40 Neb. 158, 24 L. R. A. 68, 58 N. W. 728.

[8] *State* v. *Gravett*, 65 Ohio St. 289, 55 L. R. A. 791, 87 Am. St. Rep. 605, 62 N. E. 325; *Jones* v. *People*, 84 Ill. App. 453; *Eastman* v. *People*, 71 Ill. App. 236; *People use of State Bd. of Health* v. *Jones*, 92 Ill. App. 445; *People use of State Bd. of Health* v. *Jones*, 92 Ill. App. 447; *People* v. *Gordon*, 194 Ill. 560, 88 Am. St. Rep. 165, 62 N. E. 858.

So, statutes restricting the right to practise medicine or surgery to registered physicians, requiring the filing of diplomas, apply to a physician giving electric treatment, as well as to physicians acting according to the usual methods. *Davidson* v. *Bohlman*, 37 Mo. App. 576.

And a hydropathic practitioner who prescribes cold water for his patients assumes to be a physician, and practises medicine within the meaning of a statutory provision prohibiting a recovery for compensation by a physician practising without a license. *Coyle* v. *Campbell*, 10 Ga. 570.

[9] *Little* v. *State*, 60 Neb. 749, 51 L. R. A. 717, 84 N. W. 248; *Bragg* v. *State*, 134 Ala. 165, 58 L. R. A. 925, 32 So. 767; *Eastman* v. *People*, 71 Ill. App. 236. And see *Parks* v. *State*, 159 Ind. 211, 59 L. R. A. 190, 64 N. E. 862.

Medicine, in its ordinary sense, as applied to human ailments, means something which is administered either in-

practitioner liable for a penalty imposed for practising without a license,[10] attending a person for the purpose of restoring him to sound bodily health or mental condition constituting the treating of an ailment.[11] But, where the design of the act regulating the practice of medicine is to protect the people of the state from the practice of medicine, however founded, without scientific knowledge, the practice of osteopathy, involving the use of neither drugs nor surgical instruments, is not regarded as the practice of medicine which would be unlawful if not duly licensed.[12] And it is not an agency within the meaning of a statute forbidding the prescribing of any drug or medicine, or other agency for the treatment of disease, by an unlicensed person;[13] though a practitioner of osteopathy is not permitted to prescribe or administer medicine or perform surgery.[14] And it has been held that an act forbidding the practice of the healing art by massage or without medicine, except by doctors of medicine, is unconstitutional as creating a monopoly for the benefit of doctors of medicine.[15]

VI. Penal liability for violation of regulations.

458. General rules as to unlicensed practice.—Statutes regulating the practice of medicine, surgery, etc., usually provide for the imposition of penalties for violation of their provisions; and such provision, like the regulation itself, is a valid exercise of police power; and one

ternally or externally in the treatment of disease or the relief of sickness, and it need not necessarily be a substance which may be seen and handled, but may consist of electricity conveyed by instruments or by the human hand. *Kansas City* v. *Baird*, 92 Mo. App. 204.

And a profession upon the part of a person that he practises bonesetting and reducing sprains, swellings, and contractions of the sinews by friction and fomentation, though he professes to practise no other department of the curing art, makes him one who practises physic or surgery within the meaning of a statute prohibiting the practice of physic or surgery without a license. *Hewitt* v. *Charier*, 16 Pick. 353.

[10]*People use of State Bd. of Health* v. *Jones*, 92 Ill. App. 445; *Eastman* v. *People*, 71 Ill. App. 236; *Little* v. *State*, 60 Neb. 749, 51 L. R. A. 717, 84 N. W. 248.

[11]*Little* v. *State*, 60 Neb. 749, 51 L. R. A. 717, 84 N. W. 248; *Kansas City* v. *Baird*, 92 Mo. App. 204.

[12]*Nelson* v. *State Bd. of Health*, 108 Ky. 769, 50 L. R. A. 383, 57 S. W. 501; *Hayden* v. *State*, 81 Miss. 291, 95 Am. St. Rep. 471, 33 So. 653; *State* v. *McKnight*, 131 N. C. 717, 59 L. R. A. 187, 42 S. E. 580; *Com.* v. *Thompson*, 10 Pa. Dist. R. 634, 24 Pa. Co. Ct. 667; *Queen* v. *Valleau*, 3 Can. Crim. Cas. 435.

And a person practising osteopathy is entitled to a perpetual injunction against a board of health to restrain a threatened interference with his practice by prosecuting him under an act regulating the practice of medicine. *Nelson* v. *State Bd. of Health*, 108 Ky. 769, 50 L. R. A. 383, 57 S. W. 501.

[13]*State* v. *Liffring*, 61 Ohio St. 39, 46 L. R. A. 334, 76 Am. St. Rep. 358, 55 N. E. 168; *Eastman* v. *State*, 6 Ohio S. & C. P. Dec. 296; *State* v. *Herring* (N. J. L.) 56 Atl. 670; *Hayden* v. *State*, 81 Miss. 291, 95 Am. St. Rep. 471, 33 So. 653.

[14]*Nelson* v. *State Bd. of Health*, 108 Ky. 769, 50 L. R. A. 383, 57 S. W. 501.

[15]*State* v. *Biggs*, 133 N. C. 729, 64 L. R. A. 139, 98 Am. St. Rep. 731, 46 S. E. 401.

who practises in violation thereof is liable for the penalty prescribed;[16] the offense falling within the legal or common-law notion of a crime or misdemeanor to which constitutional guaranties of the right to trial by jury apply.[17] Practising without a license, within the meaning of these provisions, consists in holding one's self out to the public as a physician, and the person practised upon need not be shown.[18] And the fact that a person was entitled to a license is no excuse where he had none.[19] And an act authorizing a recovery for each and every violation thereof authorizes a recovery of cumulative penalties.[20] Such statutes, however, being penal, are to be strictly construed;[21] and a physician whose certificate has been revoked cannot be punished under a statute imposing penalties for practising without obtaining a license, where it is entirely silent as to any effect

[16] *Little* v. *State,* 60 Neb. 749, 51 L. R. A. 717, 84 N. W. 248; *Re Roe Chung,* 9 N. M. 130, 49 Pac. 952; *Bonham's Case,* 8 Coke, 107.

And a justice of the peace entitled by law to hear actions for the recovery of $100 or less, and to impose imprisonment for the nonpayment of fines and costs at the rate of $1 per day until the days amount to the fine and costs, has jurisdiction to entertain an action to recover a penalty for a first offense, under a statute providing that any person practising medicine or surgery without the required certificate shall forfeit and pay $100 for the first offense, the same to be recovered in an action for debt before any court of competent jurisdiction. *Re Roe Chung,* 9 N. M. 130, 49 Pac. 952.

[17] *Ex parte Wong You Ting,* 106 Cal. 296, 39 Pac. 627.

[18] *State* v. *Van Doran,* 109 N. C. 864, 14 S. E. 32; *State* v. *Martin,* 23 R. I. 143, 49 Atl. 497.

[19] *State* v. *Mosher,* 78 Iowa, 321, 43 N. W. 202; *Kenedy* v. *Schultz,* 6 Tex Civ. App. 461, 25 S. W. 667; *Krowenstrot* v. *State,* 15 Ohio C. C. 73.

In *United States* v. *Williams,* 5 Cranch, C. C. 62, Fed. Cas. No. 16,713, however, it was held that one who practises medicine without a license is not guilty under a statute prohibiting it, where there was no board of examiners *de jure,* the board not having been elected and continued according to law. And see also *Bryant* v. *State,* 1 How. (Miss.) 351.

And *Robinson* v. *People,* 23 Colo. 123, 46 Pac. 676, holds that one who possesses the specified qualifications may lawfully practise dentistry under a statutory provision that it shall be unlawful for any person to practise dentistry or receive a license therefor unless he possesses certain named qualifications, and the mere fact that he does not hold a license from the state board of examiners does not render him guilty of violating the provisions of the statute.

[20] *Suffolk County* v. *Shaw,* 21 App. Div. 146, 47 N. Y. Supp. 349.

But the words "act or practise as an apothecary," in a statute imposing a penalty for so acting or practising without a certificate, are directed against an habitual or continuous course of conduct; and where a person acts by supplying medicines and giving advice to three different persons at different times, he is liable for but one penalty. *Apothecaries Co.* v. *Jones* [1893] 1 Q. B. 89, 67 L. T. N. S. 677, 41 Week. Rep. 267, 17 Cox, C. C. 588, 5 Reports, 101, 57 J. P. 56.

[21] See *Brooks* v. *State,* 88 Ala. 122, 6 So. 902; *Nelson* v. *State,* 97 Ala. 79, 12 So. 421; *Robinson* v. *People,* 23 Colo. 123, 46 Pac. 676; *Aldenhoven* v. *State,* 42 Tex. Crim. Rep. 6, 56 S. W. 914.

A statute making it a misdemeanor to practise medicine without first having registered and obtained a certificate is not in conflict with, and does not repeal, a previous act making it a misdemeanor to practise medicine for fee or reward without first having obtained a license. *State* v. *Call,* 121 N. C. 643, 28 S. E. 517.

And a charge before a justice, of practising medicine without a license, is improper and insufficient, where the statute prohibits, under a penalty, all persons from practising medicine or sur-

following revocation.[22] A statute requiring physicians to report to the board of health contagious diseases which they are called upon to attend, and imposing a penalty for failure, is not intended to punish one for practising medicine, or for pretending to heal the sick by other means or through other process than the use of medicine.[23] Whether or not an unlicensed person practised medicine is a question of fact in an action involving that issue.[24]

459. The information or indictment.—An information or indictment for violation of statutory provisions regulating the practice of medicine, surgery, etc., must allege all the acts going to constitute the offense under the statute, as, that the practising was done without a diploma, or without a certificate of qualification, or without having previously practised the prescribed period; and that the accused resided or sojourned within the jurisdiction of the court.[25] It is usually sufficient, however, to set forth the offense in the language of the statute, or in substantially equivalent terms;[26] though, when the statute defines practice, the doing of the acts or things which constitute practising must be alleged.[27] That the practice was done for a

gery as a profession without first being duly registered as a practitioner, since it is practising without being duly registered, and not without a license, which is prohibited; but, in the absence of objection, it will be assumed that it was properly explained to the jury that the offense was for a failure to register. *Richardson* v. *State*, 47 Ark. 562, 2 S. W. 187.

[22]*Williams* v. *People*, 17 Ill. App. 274; *Ex parte McNulty*, 77 Cal. 164, 11 Am. St. Rep. 257, 19 Pac. 237.

[23]*Kansas City* v. *Baird*, 92 Mo. App. 204.

[24]*Thompson* v. *Staats*, 15 Wend. 395.

[25]*State* v. *Goldman*, 44 Tex. 104; *State* v. *Fussell*, 45 Ark. 65; *State* v. *Hathaway*, 115 Mo. 36, 21 S. W. 1081; *Denton* v. *State*, 21 Neb. 446, 32 N. W. 222; *Steuben County* v. *Wood*, 24 App. Div. 442, 48 N. Y. Supp. 471; *State* v. *Call*, 121 N. C. 643, 28 S. E. 517; *State* v. *Morrill*, 7 Ohio S. & C. P. Dec. 52; *Com.* v. *Campbell*, 22 Pa. Super. Ct. 98; *State* v. *Carey*, 4 Wash. 424, 30 Pac. 729; *Schaeffer* v. *State*, 113 Wis. 595, 89 N. W. 481; *Reg.* v. *Coulson*, 24 Ont. Rep. 246, 1 Can. Crim. Cas. 114; *Queen* v. *Whelan*, 4 Can. Crim. Cas. 277.

But an information, under an act requiring that before any person engages in the practice of medicine in any of its branches or departments he shall comply with certain provisions of the act, need not allege the particular branch or department of medicine in which he engaged; and it is supported by proof of engaging in the practice of medicine in any of its branches or departments. *Antle* v. *State*, 6 Tex. App. 202.

And it is not necessary in an information, under a statute making it a crime to practise medicine in the state without having first procured a certificate from certain medical societies, to allege the existence of such medical societies. *People* v. *Boo Doo Hong*, 122 Cal. 606, 55 Pac. 402.

[26]*Benham* v. *State*, 116 Ind. 112, 18 N. E. 454; *Parks* v. *State*, 159 Ind. 211, 59 L. R. A. 190, 64 N. E. 862; *Eastman* v. *State*, 109 Ind. 278, 58 Am. Rep. 400, 10 N. E. 97; *State* v. *Bair*, 92 Iowa, 28, 60 N. W. 486; *Com.* v. *Campbell*, 22 Pa. Super. Ct. 98; *Whitlock* v. *Com.* 89 Va. 337, 15 S. E. 893. And see *State* v. *Welch*, 129 N. C. 579, 40 S. E. 120.

And an indictment is not insufficient because it does not follow the language of the statute, where it adequately charges the commission of the offense. *State* v. *Flanagan*, 25 R. I. 369, 55 Atl. 876.

[27]*Dee* v. *State*, 68 Miss. 601, 9 So. 356; *O'Connor* v. *State*, 46 Neb. 157, 64 N. W. 719.

fee or reward need not be alleged where the words "fee or reward" are not contained in the statute.[28] Where the statute contains exceptions, an indictment for its violation need not allege that accused is not within the excepted class, where the exception merely withdraws a certain class from the operation of the prohibition, and is not contained in the enacting or prohibiting clause of the act, and is not descriptive of the offense;[29] though the rule is different, where the exception is descriptive of the offense, and is found in the prohibitory clause.[30] And where offenses are local, it must be charged that the defendant resides or sojourns within the county or other district in which the breach is charged.[31] An indictment is not bad for duplicity, where it charges the commission of several acts in one count, any or all of which constitute a crime under the statute.[32] And an indictment for unlawfully practising medicine without a license covers all special instances occurring prior to the indictment, or presentation in the particular venue or county, going to sustain the main charge; and

[28]*State* v. *Welch*, 129 N. C. 579, 40 S. E. 120; *Whitlock* v. *Com.* 89 Va. 337, 15 S. E. 893.

But the rule is different where the penal act expressly prohibits practising for a fee or reward. *Derrick* v. *State*, 34 Tex. Crim. Rep. 21, 28 S. W. 818.

And a special verdict upon an indictment under an act making it a misdemeanor for any person to practise medicine for fee or reward without a license, not finding that the defendant practised for fee or reward, will not justify a conviction. *State* v. *Call*, 121 N. C. 643, 28 S. E. 517.

And specific instances of practising and receiving payment by a physician, not stated in the indictment, are not admissible in evidence on the trial of a prosecution for practising medicine without a license. *United States* v. *Williams*, 5 Cranch, C. C. 62, Fed. Cas. No. 16,713.

[29]*Mayer* v. *State*, 64 N. J. L. 323, 45 Atl. 624; *Harding* v. *People*, 10 Colo. 387, 15 Pac. 727; *Hale* v. *State*, 58 Ohio St. 676, 51 N. E. 154; *Krowenstrot* v. *State*, 15 Ohio C. C. 73; *Williams* v. *People*, 20 Ill. App. 92; *Ferner* v. *State*, 151 Ind. 247, 51 N. E. 360; *People* v. *Allen*, 122 Mich. 123, 80 N. W. 991; *Sheldon* v. *Clark*, 1 Johns. 513; *State* v. *Call*, 121 N. C. 643, 28 S. E. 517; *State* v. *Welch*, 129 N. C. 579, 40 S. E. 120; *O'Connor* v. *State*, 46 Neb. 157, 64 N. W. 719; *State* v. *Flanagan*, 25 R. I. 369, 55 Atl. 876; *Logan* v. *State*, 5 Tex. App. 306.

[30]*Mayer* v. *State*, 64 N. J. L. 323, 45 Atl. 624; *Williams* v. *People*, 20 Ill. App. 92; *McCann* v. *State*, 40 Tex. Crim. Rep. 111, 48 S. W. 512; *Steuben County* v. *Wood*, 24 App. Div. 442, 48 N. Y. Supp. 471.

And an indictment charging the violation of a statute penalizing the engaging in the practice of dentistry without a license by certain classes of persons should aver that the accused was embraced in the class as to which the practice was made penal. *Herring* v. *State*, 114 Ga. 96, 39 S. E. 866.

[31]*State* v. *Goldman*, 44 Tex. 104.

[32]*State* v. *Ragland*, 31 W. Va. 453, 7 S. E. 424; *State* v. *Van Doran*, 109 N. C. 864, 14 S. E. 32; *Hale* v. *State*, 58 Ohio St. 676, 51 N. E. 154.

And an allegation in the alternative that the defendant did practise or attempt to practise is not defective because of the use of the disjunctive instead of the word "and." *State* v. *Van Doran*, 109 N. C. 864, 14 S. E. 32.

And a charge of practising medicine without a certificate of professional qualification from an authorized board of medical examiners, and without having a diploma from some accredited medical college, is not objectionable as requiring the physician to have a certificate of qualification from authorized medical examiners, and also a diploma, in order to free him from prosecution. *Aldenhoven* v. *State*, 42 Tex. Crim. Rep. 6, 56 S. W. 914.

the state cannot be compelled to elect upon which particular act of illegal practice it will proceed.[33]

A medical practitioner prosecuted for practising medicine without a license is entitled to prove matter legalizing such practice, under a plea of not guilty.[34] And objection to the insufficiency of a complaint, on the ground that it states a mere legal conclusion, is properly made at the opening of the trial, where it is one not required to be raised by motion or demurrer by statute.[35]

460. Proof.—The burden rests with the accused in a prosecution against a physician or surgeon for practising without a license to show that he was a registered or licensed physician, if he relies on such a justification.[36] And the rule is the same in an action for the recovery of a penalty imposed for illegally practising.[37] And the burden rests with the accused in a prosecution for prescribing, selling, or disposing of opium, morphin, or other poison, to show that he had conformed to precautionary requirements of law,[38] or to show that he was within an exception to the statutory prohibition.[39] Ordinary rules of evidence as to competency and admissibility are applicable.[40] One or more of the prohibited acts must be affirmatively proved in a criminal prosecution to justify a conviction;[41] though proof of a single act of unlicensed practice is sufficient to support a conviction, where the accused held himself out to the community as a physician.[42]

[33]*Payne* v. *State* (Tenn.) 79 S. W. 1025.

[34]*Smith* v. *State*, 5 Tex. App. 318.

[35]*Steuben County* v. *Wood*, 24 App. Div. 442, 48 N. Y. Supp. 471.

[36]*Com.* v. *St. Pierre*, 175 Mass. 48, 55 N. E. 482; *Richardson* v. *State*, 47 Ark. 562, 2 S. W. 187; *People* v. *Boo Doo Hong*, 122 Cal. 606, 55 Pac. 402; *Williams* v. *People*, 20 Ill. App. 92. Affirmed in 121 Ill. 84, 11 N. E. 881; *Benham* v. *State*, 116 Ind. 112, 18 N. E. 454; *State* v. *Wilson*, 62 Kan. 621, 52 L. R. A. 679, 64 Pac. 23; *People* v. *Fulda*, 52 Hun, 65, 4 N. Y. Supp. 945; *People* v. *Rontey*, 117 N. Y. 624, 22 N. E. 1128, Affirming 6 N. Y. Crim. Rep. 249, 4 N. Y. Supp. 235; *People* v. *Nyce*, 34 Hun, 298; *Sheldon* v. *Clark*, 1 Johns. 513; *Raynor* v. *State*, 62 Wis. 289, 22 N. W. 430; *Apothecaries Co.* v. *Bentley*, Ryan & M. 159, 1 Car. & P. 538.

Such cases fall within the general rule that the subject-matter of a negative averment, lying peculiarly within the knowledge of the other party, must be taken as true unless disproved by that party. *Williams* v. *People*, 121 Ill. 84, 11 N. E. 881.

[37]*Sheldon* v. *Clark*, 1 Johns. 513; *Suffolk County* v. *Shaw*, 21 App. Div. 146, 47 N. Y. Supp. 349.

[38]*State* v. *Jones*, 18 Or. 257, 22 Pac. 840.

[39]*State* v. *Ching Gang*, 16 Nev. 62.

And a physician cannot claim to be relieved from the penal provisions of a statute, on a charge of practising medicine without a license, under exceptions contained in the statute, unless he fully complies with the requirements of the proviso, in the way of producing evidence that he was within the exception. *State* v. *Mosher*, 78 Iowa. 321, 43 N. W. 202.

[40]*Aldenhoven* v. *State*, 42 Tex. Crim. Rep. 6, 56, S. W. 914; *Raynor* v. *State*, 62 Wis. 289, 22 N. W. 430.

[41]*State* v. *Carey*, 4 Wash. 424, 30 Pac. 729.

[42]*Antle* v. *State*, 6 Tex. App. 202.

And evidence of the issuing by a physician of other prescriptions is not admissible in a specific prosecution for illegally issuing a prescription, where

To warrant a conviction for acting as, or pretending to be, a surgeon, there must be unequivocal evidence of such action or pretension: it is not sufficient that the accused is called a surgeon by persons whom he has attended professionally, in the absence of evidence that he did so on his own account and for his own profit.[43] And all the elements of the crime, including payment of reward, if that is one, must be proved.[44] A diploma issued by a regularly incorporated medical college is competent in a prosecution for assuming the title of physician without authority, and makes out a prima facie defense on the part of the accused;[45] though, if the college be one of another state, its legal existence must be shown.[46] Other acts of practice in the same jurisdiction, not far removed from the act in question, may be shown.[47] But evidence of previous conviction for the same offense is not admissible in a prosecution for pursuing the occupation of a medical specialist traveling from place to place without having paid the license tax therefor.[48] And the question whether prescribing a medical de-

there is nothing to show that the other prescriptions were not made legally and in good faith. *State* v. *Roberts*, 33 Mo. App. 524.

[43]*Pedgrift* v. *Chevallier*, 8 C. B. N. S. 240, 29 L. J. Mag. Cas. N. S. 225, 6 Jur. N. S. 1341, 2 L. T. N. S. 360, 8 Week. Rep. 500.

And an advertisement in a newspaper as a doctor of a person of the same name as the defendant is not sufficient evidence to warrant a conviction in a prosecution against him for practising medicine without a license. *State* v. *Dunham*, 31 Wash. 636, 72 Pac. 459.

But error in admission of evidence upon the part of the prosecution to prove absence of authority on the part of the defendant to use the title of doctor is not ground for reversal in a prosecution therefor; since the burden of proof rests with the defendant, and, therefore, such error cannot affect his rights. *Raynor* v. *State*, 62 Wis. 289, 22 N. W. 430.

[44]*Queen* v. *Whelan*, 4 Can. Crim. Cas. 277.

Where the state, in a prosecution for violation of an act to regulate the practice of medicine, sees fit to set forth the precise remedy or means employed, it must be confined in its proof to the remedy or means alleged, and cannot be permitted to show the adoption of some other means. *Krowenstrot* v. *State*, 15 Ohio C. C. 73.

[45]*Wendel* v. *State*, 62 Wis. 300, 22 N. W. 435.

But a diploma alleged to have been accidentally burned is not sufficiently proved in a prosecution for practising medicine without authority, where it is not shown to have issued from a chartered school, or medical society, or board of medical examiners having authority to issue it. *People* v. *Nyce*, 34 Hun, 298.

A certificate authorizing an apothecary to practise must be shown to have been properly executed and sealed. *Chadwick* v. *Bunning*, 2 Car. & P. 106, Ryan & M. 306.

[46]*Hunter* v. *Blount*, 27 Ga. 76.

[47]*Whitlock* v. *Com.* 89 Va. 337, 15 S. E. 893.

But admissions upon the part of the accused, in a prosecution for violation of the pharmacy law, that he had filled prescriptions and practised pharmacy as a physician, though competent to prove the act of practising pharmacy, are incompetent to prove that he was a physician. *Suffolk County* v. *Shaw*, 21 App. Div. 146, 47 N. Y. Supp. 349.

[48]*Howe* v. *State* (Tex. Crim. App.) 78 S. W. 1064.

And evidence of an admission by the defendant, in a prosecution for pursuing the occupation of a medical specialist traveling from place to place without having paid the license tax therefor, that he was a traveling specialist, and of his locating in one place, and of his subsequently removing to another place and practising there, is not sufficient to establish the offense beyond a reasonable doubt, where he denied the state-

vice, and claiming that it will cure a specified disease or diseases, is practising medicine, is not one for an expert, but is the ultimate question for the jury in a prosecution for practising without a license.[49]

461. Violation of excise laws.—Excise laws, in the absence of statutory exception, prohibit or regulate the sale of liquor by physicians, as well as by others.[50] Excepting physicians from such provisions, however, is not an illegal discrimination;[51] but, even where excise laws except physicians from their operation to the extent of permitting them to prescribe and use intoxicating liquor as medicine, entire good faith on their part is required,[52] though, when good faith is exercised, they are protected.[53] The question is whether or not the physi-

ment attributed to him, and testified to facts showing the contrary. *Ibid.*

[49]*People* v. *Lehr*, 196 Ill. 361, 63 N. E. 725.

A witness in a prosecution for practising medicine without a license will not be compelled to produce a wash which the physician had prescribed for his eyes, where its ingredients were secret; since, in such case, the physician has a right to his secret. *United States* v. *Williams*, 5 Cranch, C. C. 62, Fed. Cas. No. 16,713.

[50]*Thomason* v. *State*, 70 Ala. 20; *Carson* v. *State*, 69 Ala. 236; *State* v. *Benadom*, 79 Iowa, 90, 44 N. W. 218; *State* v. *Fleming*, 32 Kan. 588, 5 Pac. 19; *State* v. *Hall*, 39 Me. 107.

The contrary rule, however, was laid down in *State* v. *Larrimore*, 19 Mo. 391.

And, in *Williams* v. *State* (Tex. Crim. App.) 77 S. W. 783, it was held that a physician cannot be subjected to punishment under a local option law, for simply making an illegal prescription for intoxicating liquor.

[51]*Carthage* v. *Carlton*, 99 Ill. App. 338.

Nor do such provisions confer unconstitutional exclusive privileges. *Sarrls* v. *Com.* 83 Ky. 327.

And where the legislature has delegated to municipalities the right to license, regulate, and prohibit the sale of intoxicating liquors, they have the power to except from such regulations physicians who in good faith, use in their practice intoxicating liquors as medicine; though physicians are not expressly named as exempt in the law authorizing the municipalities to make such regulations. *Carthage* v. *Carlton*, 99 Ill. App. 338.

But a constitutional provision authorizing the enactment of a law whereby qualified voters may, by a majority vote, determine from time to time whether the sale of intoxicating liquors shall be prohibited within prescribed limits, does not authorize a statute prescribing a punishment for giving prescriptions for intoxicants in a local option territory by others than physicians, and by physicians to anyone not actually sick, and without a personal examination. *Stephens* v. *State* (Tex. Crim. App.) 73 S. W. 1056.

[52]*State* v. *Hensley*, 94 Mo. App. 151, 67 S. W. 964; *State* v. *Roberts*, 33 Mo. App. 524; *Brinson* v. *State*, 89 Ala. 105, 8 So. 527; *Redding* v. *State*, 91 Ga. 232, 18 S. E. 289; *State* v. *Cloughly*, 73 Iowa, 626, 35 N. W. 652; *Com.* v. *Green*, 80 Ky. 178; *State* v. *Atkinson*, 33 S. C. 100, 11 S. E. 693; *West* v. *State*, 35 Tex. Crim. Rep. 48, 30 S. W. 1069; *State* v. *Berkeley*, 41 W. Va. 455, 23 S. E. 608.

Where a physician gives an illegal prescription of intoxicating liquors under which a sale occurs, he is as responsible under the local option law as the seller, and both are penally liable. *McLain* v. *State*, 43 Tex. Crim. Rep. 213, 64 S. W. 865.

[53]*Stovall* v. *State*, 37 Tex. Crim. Rep. 337, 39 S. W. 934; *McQuerry* v. *State* (Tex. Crim. App.) 40 S. W. 990; *State* v. *Field*, 89 Iowa, 34, 56 N. W. 276; *Com.* v. *Minor*, 88 Ky. 422, 11 S. W. 472; *Com.* v. *Green*, 80 Ky. 178; *State* v. *Young*, 36 Mo. App. 517.

Where, on a prosecution for selling liquor without a prescription from a regular registered and practising physician, a prescription is rejected because it does not appear that the physician making it was registered, subsequently

cian prescribed the liquor as medicine when necessary as such.[54] And a physician who is a licensed pharmacist is not prevented from prescribing intoxicating liquors, and having the prescription filled in his store, by a statute prohibiting the selling of intoxicating liquor by a pharmacist except on a physician's prescription.[55] Though, in case of a sale by a druggist upon his own prescription as a physician, it is generally regarded as necessary that the prescription should be made out, filed, and preserved the same as though the transaction were between two different people.[56] And the act of a licensed physician, who is also a druggist, of making a prescription of a quantity of whisky as a physician, and selling it on the prescription as a druggist, in the absence of evidence of illness, will be regarded as a shift to evade a prohibition against the sale of intoxicating liquors.[57] Whether the accused is a physician authorized to practice medicine under these provisions is a question of fact for the jury.[58]

discovered evidence to the effect that he was duly registered warrants an order for a new trial. *State* v. *Morgan*, 96 Mo. App. 343, 70 S. W. 267.

[54]*Sarrls* v. *Com.* 83 Ky. 327.

Some of the excise laws require a physician prescribing intoxicating liquors to state in the prescription that such liquor is prescribed as a necessary remedy. *State* v. *Manning* (Mo.) 81 S. W. 223.

[55]*State* v. *Manning* (Mo.) 81 S. W. 223; *State* v. *Pollard*, 72 Mo. App. 230; *State* v. *Clevenger*, 25 Mo. App. 653; *Tilford* v. *State*, 109 Ind. 359, 10 N. E. 107; *Lindsay* v. *Com.* 99 Ky. 164, 35 S. W. 269; *Com.* v. *Matthews*, 3 Ky. L. Rep. 473; *Boone* v. *State*, 10 Tex. App. 418, 38 Am. Rep. 641.

The Missouri rule, however, was different under a former statute. *State* v. *Anderson*, 81 Mo. 78.

[56]*State* v. *Carnahan*, 63 Mo. App. 248; *State* v. *Bailey*, 73 Mo. App. 576; *Tilford* v. *State*, 109 Ind. 360, 10 N. E. 107. *Contra*, *Com.* v. *Matthews*, 3 Ky. L. Rep. 473; *State* v. *Young*, 36 Mo. App. 517.

[57]*State* v. *Hensley*, 94 Mo. App. 151, 67 S. W. 964; *Redding* v. *State*, 91 Ga. 231, 18 S. E. 289.

But a druggist and physician who makes and fills a prescription for intoxicating liquor, which was authorized by law, is not guilty of a violation of the excise law because a fraud was practised upon him, without his knowledge, in procuring the prescription. *Walker* v. *State* (Tex. Crim. App.) 64 S. W. 1052.

[58]*State* v. *Young*, 36 Mo. App. 517.

A dentist or dental surgeon is not a physician within the meaning of these provisions. *State* v. *McMinn*, 118 N. C. 1259, 24 S. E. 523.

CHAPTER XIV.

DUTY TO CALL PHYSICIAN.

462. Coextensive with duty to support.—An adult person who is *compos mentis* is, of course, responsible to himself only for the care which he takes of his own health, and can be held liable to no one, either criminally or civilly, for failure or refusal to call a physician for his own benefit, whatever need there may be. The law of nature, however, as well as the common law, devolves upon parents the duty of caring for their young in sickness and in health, and of doing whatever may be necessary for their care, maintenance, and preservation, including the supplying of medical attendance if necessary.[1] And neglect to perform such duty upon the part of a parent or master, from which the death of a child or an apprentice resulted, appears to have been regarded as culpable homicide at common law.[2] And persons wilfully omitting to perform the duty imposed upon them by law to furnish medical attendance to a minor have been made criminally liable therefor in some jurisdictions by statute.[3] And conscientious or superstitious opinions upon the part of the parents, that it is wrong and irreligious to provide medical aid for their infant children in their custody, or that religion will cure disease, furnish no excuse for disobeying such provision.[4] Nor are constitutional guaranties of

[1] *People* v. *Pierson*, 176 N. Y. 201, 63 L. R. A. 187, 98 Am. St. Rep. 666, 68 N. E. 243.

[2] See *Reg.* v. *Smith*, 8 Car. & P. 153; *Reg.* v. *Conde*, 10 Cox, C. C. 547; *Rex* v. *Friend*, Russ. & R. C. C. 20; *R.* v. *Squire*, cited in 3 Russell, Crimes, 6th ed. p. 13; *Queen* v. *Senior* [1899] 1 Q. B. 283; *Rex* v. *Brooks*, 9 B. C. 13.

[3] See *People* v. *Pierson*, 176 N. Y. 201, 63 L. R. A. 187, 98 Am. St. Rep. 666, 68 N. E. 243; *Reg.* v. *Downes*, 13 Cox, C. C. 111, L. R. 1 Q. B. Div. 25, 45 L. J. Mag. Cas. N. S. 8, 33 L. T. N. S. 675, 24 Week. Rep. 278.

A statute requiring physicians to report to the board of health contagious diseases which they are called to treat does not require that one afflicted with such disease shall have a physician, but simply that, when one is called, he shall report the disease as soon as he becomes aware of its nature. *Kansas City* v. *Baird*, 92 Mo. App. 204.

[4] *Reg.* v. *Downes*, 13 Cox, C. C. 111, L. R. 1 Q. B. Div. 25, 45 L. J. Mag. Cas. N. S. 8, 33 L. T. N. S. 675, 24 Week. Rep. 278; *Reg.* v. *Cook*, 58 Alb. L. J. 232; *Queen* v. *Senior* [1899] 1 Q. B. 283; *Rex* v. *Brooks*, 9 B. C. 13; *State* v. *Chenoweth* (Ind.) 71 N. E. 197. *Contra*, *Reg.* v. *Wagstaffe*, 10 Cox, C. C. 530; *Reg.* v. *Hines*, cited in 13 Cox, C. C. 114.

The meaning of a statute providing that an omission to provide medical aid for minors shall be punishable summarily is that, if any parent intentionally, with the knowledge that medical aid is to be obtained, abstains from

religious freedom violated by such provisions, though failure to furnish medicines was prompted by such religious belief.[5] Such provisions impose the obligation to furnish medical attendance for the benefit of another, upon the one upon whom the law imposes the obligation of caring for and supporting such other.[6] And the time when a physician should be called is that at which an ordinarily prudent person, solicitous for the welfare of his children, and anxious to promote their recovery, would deem it necessary to do so.[7] And the statute refers to authorized medical attendance of a regularly licensed physician duly qualified according to law.[8]

But a parent will not be held criminally liable for the death of his child, upon a mere vague statement of skilled witnesses that probably his life might have been prolonged if medical attendance had been called.[9] And it is not sufficient to show merely that the parent neglected to use reasonable means of saving the life of his child; it is also necessary to show that the neglect of the parent had the effect of shortening the child's life;[10] and there can be no liability unless there was a legal duty which was omitted; and the parent will not be held liable where the child was of age, though it resided at the parent's home.[11]

providing it when needed by a child, he is guilty of an offense; and if the death of the child results, it is manslaughter, whether the omission proceeded from a good or bad motive. *Reg.* v. *Downes*, 13 Cox, C. C. 111, L. R. 1 Q. B. Div. 25, 45 L. J. Mag. Cas. N. S. 8, 33 L. T. N. S. 675, 24 Week. Rep. 278.

And where a woman intending temporary concealment of the birth of her child contrives to avoid the presence of anyone at that time, she will be regarded as having invested herself with responsibility from the moment of the birth for the care and charge of the child; and if, after assuming such care and charge, she allows the child to die from negligence, she is guilty of manslaughter. *Reg.* v. *Handley*, 13 Cox, C. C. 79.

[5] *People* v. *Pierson*, 176 N. Y. 201, 63 L. R. A. 187, 98 Am. St. Rep. 666, 68 N. E. 243.

[6] *Ibid.*

[7] *Ibid.*

An indictment for failure to furnish medical attendance to a minor, under a statute requiring the furnishing of such attendance, is not insufficient because of failure to allege that the case was one in which a physician ought to have been called, if it alleges that the accused unlawfully omitted to perform the statutory duty of furnishing medical attendance. *Ibid.*

[8] *Ibid.*

[9] *Reg.* v. *Morby*, 15 Cox, C. C. 35, L. R. 8 Q. B. Div. 571, 46 L. T. N. S. 288, 51 L. J. Mag. Cas. N. S. 85, 46 J. P. 422, 30 Week. Rep. 613.

[10] *Ibid.*

[11] *Reg.* v. *Shepherd*, 9 Cox, C. C. 123, Leigh & C. C. C. 147, 31 L. J. Mag. Cas. N. S. 102, 8 Jur. N. S. 418, 5 L. T. N. S. 687, 10 Week. Rep. 297.

An indictment for manslaughter charging that the deceased was the apprentice of the prisoner, and that it was the duty of the prisoner to provide him with proper medicine, but that he died from neglect, is not supported by evidence that the prisoner told the witness that the deceased was his apprentice, without the production of any indenture. *Reg.* v. *Crumpton*, Car. & M. 597.

And an instruction in a prosecution against a man for manslaughter for the death of a child born to a girl living in his family, at or soon after the child's birth, that, if he permitted the child to be born in his house, it was criminal negligence on his part not to have procured assistance for her, is erroneous in not taking into consideration the situation, and attendant circumstances, and

It has been held, however, that an attempt to confer the exclusive right to treat all diseases, physical and mental, real or imaginary, upon licensed physicians, so as to make it illegal to call upon anyone except licensed physicians, to attend persons who are ill, is unconstitutional, under a provision prohibiting monopolies and perpetuities.[12] And to prohibit practising medicine or surgery without a license, and to make the practice of medicine and surgery include the management of any disease by any method whatever, are not within legislative power, since this would be to make the practice of medicine and surgery include the practice of healing without medicine or surgery.[13] And a person suffering a personal injury is not precluded from recovering therefor against the person causing the injury, by the fact that he cared for himself instead of calling a physician, where it appears that he used all reasonably accessible means for his cure, and pursued upon his own judgment that course of treatment which would ordinarily have been adopted by a physician.[14]

his ability to procure assistance, and as tending to lead the jury to understand that, because he did not turn her into the street when he discovered her condition, it was a reckless disregard of his duty to the child not to have procured assistance. *State* v. *Noakes*, 70 Vt. 247, 40 Atl. 249.

[12]*State* v. *Biggs*, 133 N. C. 729, 64 L. R. A. 139, 98 Am. St. Rep. 731, 46 S. E. 401.

And an act passed apparently in favor of a state medical society, practically confining the right to practise medicine to its members, will be construed most strongly against the society. *Ibid.*

[13]*Ibid.*

And the Postmaster General is not warranted in prohibiting the delivery of letters addressed to a corporation which assumes to heal disease through the influence of the mind, by a statute authorizing such detention of letters addressed to anyone obtaining money by fraud or false pretenses. *American School of Magnetic Healing* v. *McAnnulty*, 187 U. S. 94, 47 L. ed. 90, 23 Sup. Ct. Rep. 33.

It is to be observed that the above case of *State* v. *Biggs*, 133 N. C. 729, 64 L. R. A. 139, 98 Am. St. Rep. 731, 46 S. E. 401 is one of prosecution for a violation of laws regulating the practice of medicine, and not one of failure or refusal to call a physician; and it is thought that, while the principles announced in it would probably operate to except a person practising healing without medicine or surgery from punishment for practising medicine and surgery without a license, they would not operate to excuse a person upon whom a duty rested to call a physician or surgeon for the benefit of another, in a case in which the services of a physician or surgeon were required, for calling, instead, a practitioner of healing without medicine or surgery.

[14]*Arkansas River Packet Co.* v. *Hobbs*, 105 Tenn. 29, 58 S. W. 278.

CHAPTER XV.

RELATION BETWEEN PHYSICIAN AND PATIENT OR EMPLOYER.

463. Its nature generally.—The relation between a physician and his patient or employer is contractual in its nature;[1] and the principles of the common law apply in general to the services of a physician, as well as to the services of others.[2] The contract may be formal and express, or it may be implied from the rendition and acceptance of service. Where services are rendered by a physician and accepted by the patient, there is an implied contract to pay for them, whether the physician was engaged by him or by a third person.[3] And the nature of the demand of a physician for medical services rendered without a special contract therefor is simply an implied promise to pay what such services are reasonably worth.[4] Where a contract is made through a physician for services at a hospital, it is subject to the rules of the hospital except as modified by the parties by special agreement.[5] And a subscriber to a hospital under a verbal contract ex-

[1] See *Jonas* v. *King*, 81 Ala. 285, 1 So. 591; *Morrisette* v. *Wood*, 128 Ala. 505, 30 So. 630; *Smith* v. *Hobbs*, 119 Ga. 96, 45 S. E. 963; *Re Freeman*, 46 Hun, 458, 12 N. Y. S. R. 175; *Musser* v. *Chase*, 29 Ohio St. 577; *Smith* v. *Watson*, 14 Vt. 332.

[2] *Starrett* v. *Miley*, 79 Ill. App. 658.

[3] *Smith* v. *Watson*, 14 Vt. 332; *Peck* v. *Martin*, 17 Ind. 115; *Shelton* v. *Johnson*, 40 Iowa, 84.

An averment in an action against a physician for malpractice, that the retainer of the defendant was at his special instance and request, is sufficiently proved by showing that the defendant held himself out as a practitioner soliciting public patronage, and that the employment was by mutual consent. *Musser* v. *Chase*, 29 Ohio St. 577.

[4] *Morrisette* v. *Wood*, 128 Ala. 505, 30 So. 630; *Chicago & N. W. R. Co.* v. *Friend*, 86 Ill. App. 157; *Peck* v. *Martin*, 17 Ind. 115.

[5] *Crumrine* v. *Austin* (Mich.) 10 Det. L. N. 216, 94 N. W. 1057.

And where such a contract is made not contemplating an operation, and un-

isting between the company employing him and the hospital, that all of its employees subscribing should be entitled to medical attendance at the hospital free, cannot escape payment of a bill for medical services rendered him by the hospital physician at his residence.[6] A contract with a physician for medical services cannot be avoided because made on the Sabbath. Healing the sick is a work of necessity or charity within the exception in statutory prohibitions against Sunday labor.[8]

464. Personal character of contract.—Contracts for personal services, like those of a physician, are subject to the implied condition that he shall remain in a condition to perform, and are revoked if sickness or other disability renders him unable to do so;[8] and in such case an obligation previously given for payment for such services is discharged.[9] But a physician to whom a sum of money is paid by a patient upon his agreement to cure him of a disease, the contract being conditioned that the patient should take further treatment if a cure was not effected, may retain the money paid though there was no cure, where the other neglected or refused to submit to further treatment.[10]

465. Continuance of relation.—A physician or surgeon called to attend a patient may elect whether or not he will give his services to the case.[11] But if he accepts the employment, it continues while the sickness lasts unless ended by express dismissal by the patient,[12]

der the rules of the hospital the house surgeon was not given charge of patients, and an outside surgeon was called upon to perform the operation, the party operated upon is liable to the surgeon performing the operation for compensation for his services. *Ibid.*

[6]*Corbus* v. *Leonhardt*, 51 C. C. A. 636, 114 Fed. 10.

[7]*Smith* v. *Watson*, 14 Vt. 332; *Aldrich* v. *Blackstone*, 128 Mass. 148; *Staggers's Estate*, 8 Pa. Super. Ct. 260.

[8]*Powell* v. *Newell*, 59 Minn. 406, 61 N. W. 335.

[9]*Ibid.*

[10]*Madison* v. *Mangan*, 77 Ill. App. 651.

[11]*Lathrope* v. *Flood*, 135 Cal. 458, 57 L. R. A. 215, 63 Pac. 1007, 67 Pac. 683; *Hurley* v. *Eddingfield*, 156 Ind. 416, 53 L. R. A. 135, 83 Am. St. Rep. 198, 59 N. E. 1058.

A physician is not liable for injury resulting to a person from his arbitrary refusal to attend her when sick, although no other physician was procurable. *Hurley* v. *Eddingfield*, 156 Ind. 416, 53 L. R. A. 135, 83 Am. St. Rep. 198, 59 N. E. 1058.

[12]*Lawson* v. *Conaway*, 37 W. Va. 159 18 L. R. A. 627, 38 Am. St. Rep. 17, 16 S. E. 564; *Dale* v. *Donaldson Lumber Co.* 48 Ark. 188, 3 Am. St. Rep. 224, 2 S. W. 703; *Lathrope* v. *Flood*, 135 Cal. 458, 57 L. R. A. 215, 63 Pac. 1007, 67 Pac. 683; *Edelman* v. *McDonell*, 126 Cal. 210, 58 Pac. 528; *Ritchey* v. *West*, 23 Ill. 385; *Barbour* v. *Martin*, 62 Me. 536; *Dashiell* v. *Griffith*, 84 Md. 363, 35 Atl. 1094; *Potter* v. *Virgil*, 67 Barb. 578; *Becker* v. *Janinski*, 27 Abb. N. C. 45, 15 N. Y. Supp. 675; *Gerken* v. *Plimpton*, 62 App. Div. 35, 70 N. Y. Supp. 793; *Tucker* v. *Gillette*, 22 Ohio C. C. 664.

And a physician called upon to care for an injured arm of a patient, who dismisses himself on the ground that his services are no longer required, but subsequently calls and gives directions as to the arm, and makes statements as to its condition, occupies the same position as if he had acted continuously, and is responsible for such directions and statements. *Carpenter* v. *Blake*, 75 N. Y. 12.

And any person of intelligence is capable of judging of the necessity of medical advice and services, and is com-

which may be done at any time;[13] or until terminated by the physician, which can only be done after due notice, and an ample opportunity to secure other medical attendance.[14] Continued attention upon the part of a physician or surgeon to his patient so long as attention is required is an inference of law from the undertaking of the physician, in the absence of any stipulation to the contrary.[15] It is competent for a physician and his employer, however, to make such a contract as they see fit; and they may limit the attendance to a longer or shorter period.[16] And it is for the physician to determine how often he ought to visit the patient; and if the patient accepts his services without objection or modification, he cannot afterwards refuse to pay for visits on the ground that they were unnecessary.[17]

466. Warranty of cure.—In the absence of special contract, a physician in charge of a patient is not considered as warranting a cure.[18]

petent to prove that a person was sick, or so sick as to require medical advice; and it is not improper to permit a non-medical witness to testify whether or not it was necessary for the physician to give his attendance as long as he did. *Chicago, B. & Q. R. Co.* v. *George*, 19 Ill. 510, 71 Am. Dec. 239.

So, a veterinary, called upon to treat a sick horse, agreeing to call the next morning early, but neglecting ever to call again, is guilty of such negligence as will prevent a recovery for his services. *Boom* v. *Reed*, 69 Hun, 426, 23 N. Y. Supp. 421.

[13]*Lathrope* v. *Flood*, 135 Cal. 458, 57 L. R. A. 215, 63 Pac. 1007, 67 Pac. 683. And see *Dashiell* v. *Griffith*, 84 Md. 363, 35 Atl. 1094; *Tucker* v. *Gillette*, 11 Ohio S. & C. P. Dec. 226.

[14]*Lathrope* v. *Flood*, 135 Cal. 458, 57 L. R. A. 215, 63 Pac. 1007, 67 Pac. 683; *Ballou* v. *Prescott*, 64 Me. 305; *Becker* v. *Janinski*, 27 Abb. N. C. 45, 15 N. Y. Supp. 675; *Gerken* v. *Plimpton*, 62 App. Div. 35, 70 N. Y. Supp. 793; *Tucker* v. *Gillette*, 22 Ohio C. C. 664; *Lawson* v. *Conaway*, 37 W. Va. 159, 18 L. R. A. 627, 38 Am. St. Rep. 17, 16 S. E. 564. But see *White* v. *Mastin*, 38 Ala. 147.

[15]*Ballou* v. *Prescott*, 64 Me. 305.

[16]*Ballou* v. *Prescott*, 64 Me. 305; *Dale* v. *Donaldson Lumber Co.* 48 Ark. 188, 3 Am. St. Rep. 224, 2 S. W. 703; *Carpenter* v. *Blake*, 60 Barb. 488.

A physician, with the consent of his patient, may, at any time, discontinue his services at the instance of the patient, and continue them under a contract with another person at his expense; and the assent of the patient to the new contract is not necessary. *White* v. *Mastin*, 38 Ala. 147.

But while a physician or surgeon may give up the care of a patient at any time with the patient's assent, if he insists upon such assent as a shield from liability for any negligence of which he may have been guilty, or for any malpractice committed, it is competent for the patient to show that consent was obtained by false representations. *Carpenter* v. *Blake*, 60 Barb. 488.

And the consent of a person injured, to the abandonment of his case by the surgeon employed by him, given because the acts or language of the surgeon had induced the patient to believe that the injury was properly cared for and in a fair way to be cured, does not discharge him, where such acts and representations were false or unfounded. *Ibid.*

[17]*Ebner* v. *Mackey*, 186 Ill. 297, 51 L. R. A. 298, 78 Am. St. Rep. 280, 57 N. E. 834; *Todd* v. *Myres*, 40 Cal. 355.

[18]*Tefft* v. *Wilcox*, 6 Kan. 46; *Becknell* v. *Hosier*, 10 Ind. App. 5, 37 N. E. 580; *Baker* v. *Hancock*, 29 Ind. App. 457, 63 N. E. 323, 64 N. E. 38; *Patten* v. *Wiggin*, 51 Me. 594, 81 Am. Dec. 593; *Hesse* v. *Knippel*, 1 Mich. N. P. 109; *Vanhooser* v. *Berghoff*, 90 Mo. 487, 3 S. W. 72; *Van Skike* v. *Potter*, 53 Neb. 28, 73 N. W. 295; *O'Hara* v. *Wells*, 14 Neb. 403, 15 N. W. 722; *Pike* v. *Honsinger*, 155 N. Y. 201, 63 Am. St. Rep. 655, 49 N. E. 760; *Becker* v. *Janinski*, 27 Abb. N. C. 45, 15 N. Y. Supp. 675; *Grindle* v. *Rush*, 7 Ohio, pt. 2, p. 123; *Craig* v. *Chambers*, 17 Ohio St. 253; *Tish* v. *Welker*, 5 Ohio S. & C. P. Dec.

He is not an insurer of the success of his treatment,[19] and a jury cannot be permitted to draw a conclusion of unskilfulness upon his part from the result of the treatment.[20] He is at liberty, however, to contract to effect a cure,[21] in which case he can only recover compensation for his services on showing performance of the contract according to its terms.[22] And he may even render himself responsible for the results of mere errors of judgment.[23]

725; *Gallaher* v. *Thompson*, Wright (Ohio) 466; *McCandless* v. *McWha*, 22 Pa. 261; *Haire* v. *Reese*, 7 Phila. 138; *Graham* v. *Gautier*, 21 Tex. 111; *Kuhn* v. *Brownfield*, 34 W. Va. 252, 11 L. R. A. 700, 12 S. E. 519; *Reynolds* v. *Graves*, 3 Wis. 416; *Ewing* v. *Goode*, 78 Fed. 442; *Lamphier* v. *Phipos*, 8 Car. & P. 475.

And a complaint against a physician, alleging that the defendant held himself out as a physician and surgeon, and as such was employed and retained to set, dress, manage, and cure plaintiff's broken bone, does not set out a special contract to cure it. *Reynolds* v. *Graves*, 3 Wis. 416; *Hoopingarner* v. *Levy*, 77 Ind. 455; *Vanhooser* v. *Berghoff*, 90 Mo. 487, 3 S. W. 72.

[19]*Yunker* v. *Marshall*, 65 Ill. App. 667; *Quinn* v. *Donovan*, 85 Ill. 194; *McKee* v. *Allen*, 94 Ill. App. 147; *Styles* v. *Tyler*, 64 Conn. 432, 30 Atl. 165; *Getchell* v. *Hill*, 21 Minn. 464; *Logan* v. *Field*, 75 Mo. App. 594; *Ely* v. *Wilbur*, 49 N. J. L. 685, 60 Am. Rep. 669, 10 Atl. 385, 441; *Winner* v. *Lathrop*, 67 Hun, 511, 22 N. Y. Supp. 516; *Boldt* v. *Murray*, 2 N. Y. S. R. 232; *Williams* v. *Poppleton*, 3 Or. 139; *Reber* v. *Herring*, 115 Pa. 599, 8 Atl. 830; *Wilkins* v. *Ferrell*, 10 Tex. Civ. App. 231, 30 S. W. 450; *Lawson* v. *Conaway*, 37 W. Va. 159, 18 L. R. A. 627, 38 Am. St. Rep. 17, 16 S. E. 564; *James* v. *Crockett*, 34 N. B. 540; *Hancke* v. *Hooper*, 7 Car. & P. 81.

Where, in an action by a physician for the recovery of compensation for medical service, the only question for the jury is one of reasonable value, an instruction as to a guaranty of relief or recovery is prejudicial error. *Ladd* v. *Witte*, 116 Wis. 35, 92 N. W. 365.

[20]*Sims* v. *Parker*, 41 Ill. App. 284; *Craig* v. *Chambers*, 17 Ohio St. 253; *Haire* v. *Reese*, 7 Phila. 138.

But while a statement by a physician made to a patient's wife, not in his presence, that he would guarantee a cure in three months, is admissible on the question of the physician's want of ordinary care and skill only, and not for the purpose of proving a contract with the patient to charge nothing unless a cure was effected, where it is not so limited, it is in the case for all purposes, and will support a charge with reference to an agreement not to charge for services unless a cure was effected. *McDonald* v. *Harris*, 131 Ala. 359, 31 So. 548.

[21]*Vanhooser* v. *Berghoff*, 90 Mo. 487, 3 S. W. 72; *Mock* v. *Kelly*, 3 Ala. 387. And see *Jonas* v. *King*, 81 Ala. 285, 1 So. 591.

And where a physician attends patients under a stipulation for no pay unless cured, and afterwards a son of the patients agrees to be holden for payment for such medical attendance, the undertaking is collateral; and evidence in an action thereon, that the medical attendance was attended with no beneficial effects, is admissible to show want of liability on the part of the principal debtor to defeat recovery on the collateral undertaking. *Smith* v. *Hyde*, 19 Vt. 54.

[22]*Ibid; Fisk* v. *Townsend*, 7 Yerg. 146.

And the disease with which a person was afflicted is not material in an action on a contract for medical services in which the physician agreed to cure the patient or receive no pay. *Hollywood* v. *Reed*, 57 Mich. 234, 23 N. W. 792.

But a contract between an habitual drunkard and a physician by which the physician was to cure the drunkard of his appetite for liquor is performed so as to entitle the physician to recover therefor, where the drunkard quit his habits of intoxication for nine months, and admitted that he had lost his appetite for liquor, though he afterwards returned to his habits of drunkenness for the purpose of evading payment. *Fisk* v. *Townsend*, 7 Yerg. 146.

[23]*Graham* v. *Gautier*, 21 Tex. 111; *Crowty* v. *Stewart*, 95 Wis. 490, 70 N. W. 558.

To constitute a conditional contract

467. Contracts by third persons generally.—With reference to contracts with physicians for medical services made by other persons than the patient, the general rule that, where a person requests the performance of a service and the request is complied with, the law raises an implied promise to pay the reasonable value of the services, has been adopted in some cases, holding that one who requests a physician to attend another person, without disclosing that he is acting only as an agent, becomes liable for the physician's services in accordance with such request.[24] The prevailing rule, however, regards a third person calling a physician as a mere medium of intelligence that a physician is wanted, and holds that he is under no legal obligations to pay for the services rendered unless he expressly undertakes to pay for them,[25] or unless it may fairly be inferred that it was the intention of both parties that he should pay for them,[26] or unless his relation to the patient was such as to raise a legal obligation on his part to pay for the services.[27] Under this rule, to hold one person for services rendered to another, they must have been rendered, not only at his instance and request, but also upon his credit.[28] And the burden of

with a physician that, if he did not cure the patient, he was to receive no compensation, it is not necessary that a specific price should be agreed upon: a contract that, if a physician cured the patient he should be entitled to reasonable compensation, is valid and will be enforced. *Mock* v. *Kelly*, 3 Ala. 387.

[24]*Foster* v. *Meeks*, 18 Misc. 461, 41 N. Y. Supp. 950; *Bradley* v. *Dodge*, 45 How. Pr. 57; *Hentig* v. *Kernke*, 25 Kan. 559; *Thomas* v. *Leavy*, 62 Ill. App. 34; *Grattop* v. *Rowheder*, 1 Herdman (Neb.) 660, 95 N. W. 679.

[25]*Smith* v. *Watson*, 14 Vt. 332; *Clark* v. *Waterman*, 7 Vt. 76, 29 Am. Dec. 150; *Michigan College of Medicine* v. *Charlesworth*, 54 Mich. 522, 20 N. W. 566; *Smith* v. *Riddick*, 50 N. C. (5 Jones, L.) 342; *Guerard* v. *Jenkins*, 1 Strobh. L. 171.

A statement by a third person to another with reference to an injured boy, directing him to go and get the doctor, and do all he could for the boy, and that he would see that the latter got his pay, furnishes evidence from which the jury, in an action against him for physician's services, would be justified in finding an original undertaking to pay therefor. *Boston* v. *Farr*, 148 Pa. 220, 23 Atl. 901.

But proof that a physician upon hearing of a person's injury rendered medical assistance, and afterwards, upon being about to discontinue, a third person requested him to continue, and afterwards, upon a bill being presented showing a claim against him individually for the physician's services, he did not deny his responsibility, is not sufficient to render the third person responsible for the physician's services. *Curry* v. *Shelby*, 90 Ala. 277, 7 So. 922.

[26]*Smith* v. *Watson*, 14 Vt. 332.

Where, with the knowledge of a woman, a physician had been sent for for another ill in her house, not directly by her, but without objection on her part, and when the physician came he was met by her husband, who forbade him rendering services on their account, an inference of a promise on their part to pay for his services is not warranted. *Shaw* v. *Graves*, 79 Me. 166, 8 Atl. 884.

[27]*Meisenbach* v. *Southern Cooperage Co.* 45 Mo. App. 232; *Jesserich* v. *Walruff*, 51 Mo. App. 270; *Starrett* v. *Miley*, 79 Ill. App. 658; *Holmes* v. *McKim*, 109 Iowa, 245, 80 N. W. 329; *Crane* v. *Baudouine*, 55 N. Y. 256; *Boyd* v. *Sappington*, 4 Watts, 247.

[28]*Northern C. R. Co.* v. *Prentiss*, 11 Md. 119; *Canney* v. *South Pacific Coast R. Co.* 63 Cal. 501; *Michigan College of Medicine* v. *Charlesworth*, 54 Mich. 522, 20 N. W. 566.

Where a physician undertakes service upon the employment of the patient, he

showing that a contract for medical services with the patient had been discontinued, and that another had contracted for subsequent services, becoming responsible therefor, rests with him who asserts it.[29] A contract for medical services to be rendered to another is an original undertaking, which need not be in writing under the statute of frauds;[30] and the burden of proof of relationship imposing a legal obligation to pay for medical services rests with the person asserting it;[31] and the question as to whether medical services were rendered on the credit of the patient or another is one for a jury.[32]

468. Employment by husband or wife.—Since a husband is under legal obligation to care for his wife and furnish her with necessaries, an implied contract arises when he calls a physician to attend her, to pay therefor the reasonable value of his services.[33] And a married woman may, in the absence of her husband, procure necessary medicine, and medical aid, and advice for herself, for which her husband would be liable as for necessaries.[34] And where a husband places his wife in the care of a physician for medical or surgical treatment, he impliedly requests him to adopt such course of treatment and operation as, in his judgment, will be most liable to effect her ultimate recovery;[35] and the physician may proceed without further notice to

cannot afterwards hold the patient's father liable therefor, on oral expressions of interest in the case, or oral guaranties of the son's solvency. *Edelman* v. *McDonell*, 126 Cal. 210, 58 Pac. 528.

[29] *Curry* v. *Shelby*, 90 Ala. 277, 7 So. 922.

[30] *King* v. *Edmiston*, 88 Ill. 257.

But where a physician attends a patient, and after several visits a son-in-law offers to become responsible for his services, his undertaking refers to subsequent visits only. *Starrett* v. *Miley*, 79 Ill. App. 658; *King* v. *Edmiston*, 88 Ill. 257.

[31] *Neilson* v. *Ray*, 44 N. Y. S. R. 125, 17 N. Y. Supp. 500.

[32] *Northern C. R. Co.* v. *Prentiss*, 11 Md. 119.

And where a physician examines a patient, and decides that a surgical operation for an internal trouble is necessary, and agrees to perform it for a stated sum, and afterwards upon further examination decides and states that the first diagnosis was erroneous, and that the operation suggested is not necessary, but a more serious one is required which will jeopardize life, after which, with the consent of his employer, he performs the operation,—it is a question for the jury whether or not the original agreement based upon the first examination was superseded. *MacEvitt* v. *Maass*, 64 App. Div. 382, 72 N. Y. Supp. 158.

[33] *Meisenbach* v. *Southern Cooperage Co.* 45 Mo. App. 232; *Moody* v. *Osgood*, 50 Barb. 628; *Re Smith*, 18 Misc. 139, 41 N. Y. Supp. 1093.

[34] *Wood* v. *O'Kelley*, 8 Cush. 406.

And an agreement upon the part of a husband living separate from his wife to pay her a certain sum per month for her support does not relieve him from liability for medical services afterwards rendered to the wife, where the physician rendering them had no knowledge of such agreement. *Lawrence* v. *Brown*, 91 Iowa, 342, 59 N. W. 256.

But he would not be liable for medicines furnished by one who did not profess to be a physician, or to have medical skill or knowledge of diseases and their remedies, but who practised through clairvoyance or mesmerism. *Wood* v. *O'Kelley*, 8 Cush. 406.

[35] *M'Clallen* v. *Adams*, 19 Pick. 333, 31 Am. Dec. 140.

the husband.[36] Even though the wife herself sends or applies for the services of the physician, the inference is that she acted as agent for her husband, and he, and not she or her estate, is liable for services rendered;[37] though the wife may, by express agreement, charge her separate estate.[38] And though parties living together are not husband and wife, where the man employs a physician for the woman, representing her to be his wife, he is liable to the physician for the services rendered.[39] And the liability of a husband once incurred continues until the wife is cured, though she is removed from the husband's house, where he does not expressly repudiate responsibility;[40] though a wife cannot abandon her husband's house, and bind him by contracts for medical attendance, except upon clear and satisfactory proof of gross abuse, neglect, and misconduct on his part.[41] A wife, however, is not liable to a physician for medical attendance upon her husband, where she did not employ him, or in any way suggest or request that he attend her husband.[42]

469. Employment by head of family.—Where a father calls a physician to attend his minor child, the law implies a promise on his part to pay the reasonable value of the services, because there is a legal obligation to furnish necessaries for the patient's benefit.[43] But the

[36]*Ibid.*

[37]*Ellison* v. *Sessions*, 44 N. Y. S. R. 644, 18 N. Y. Supp. 108; *Re Weringer*, 100 Cal. 345, 34 Pac. 825.

Where a married woman consents to an operation, physicians are justified in performing it if, after consultation, they deem it necessary for the preservation and prolongation of her life, without reference to the consent or want of consent of her husband. *State use of Janney* v. *Housekeeper*, 70 Md. 162, 2 L. R. A. 587, 14 Am. St. Rep. 340, 16 Atl. 382.

[38]*Ellison* v. *Sessions*, 44 N. Y. S. R. 644, 18 N. Y. Supp. 108; *Re Smith*, 18 Misc. 139, 41 N. Y. Supp. 1093.

An express promise upon the part of a wife to pay for medical services rendered to her cannot be inferred from the fact that such services were rendered upon her request. *Re Smith*, 18 Misc. 139, 41 N. Y. Supp. 1093.

But testimony of a physician in an action by him against a married woman for professional services, that she herself agreed to be responsible for them, and that of the defendant, that she made no such promise or contract, creates a conflict which should be submitted to the jury; and it is error in such a case to direct a finding in favor of the defendant. *Trentham* v. *Waldrop*, 119 Ga. 152, 45 S. E. 988.

[39]*Gerlach* v. *Turner*, 89 Cal. 446, 26 Pac. 870.

And he is liable for services rendered to her after the physician is informed that she is not his wife, where he does not then plainly and unequivocally put an end to the employment. *Ibid.*

[40]*Potter* v. *Virgil*, 67 Barb. 578; *Downing* v. *O'Brien*, 67 Barb. 583.

[41]*Potter* v. *Virgil*, 67 Barb. 578.

[42]*Callahan* v. *O'Rourke*, 17 App. Div. 277, 45 N. Y. Supp. 764.

The rendition of a physician's bill to a woman for medical services to her husband, and her payment of a part thereof, and a proposal to settle the rest, do not establish an account stated between the parties, rendering her liable for the balance. *Ibid.*

[43]*Mcisenbach* v. *Southern Cooperage Co.* 45 Mo. App. 232; *McMillen* v. *Lee*, 78 Ill. 443.

A father is liable to a physician for medical services rendered to his minor son at his house and with his knowledge and assent, as on an implied promise without proof of an express promise; though the son had previously left the

general rule that no contract is implied where one person requests a physician to perform services for another, unless his relation to the patient is such as to raise a legal obligation on his part to call for and pay the physician, prevents a father from being liable for requesting the attendance of a physician upon a child of full age, for whom he was not bound to provide, though such child may have been sick at his house.[44] And the same rule applies to a contract with a physician for medical services to be rendered to a parent of the contracting party,[45] or to be rendered to a minor living in his family and supported by him, but not otherwise related to him;[46] though the assumption of the parental relation to a minor carries with it the obligation to care for his or her health.[47] And the promise of a person not bound to furnish medical attendance, to pay for services previously rendered to a member of his family, but not on his credit, is a naked agreement to pay the debt of another, upon which no legal obligation can be predicated.[48] Nor is a person liable for medical services to be rendered to another, in the absence of express contract, because he was

house of his father, against his father's will, and refused to return on his request, but returned upon being taken sick. *Deane* v. *Annis*, 14 Me. 26.

And evidence that a man paid for music lessons given to a girl, and that she called him "papa," and that he had previously paid the plaintiff for similar services rendered to the girl, is sufficient to establish the fact that he was the girl's father, and that he was legally liable for medical services rendered to her by the plaintiff. *Neilson* v. *Ray*, 44 N. Y. S. R. 125, 17 N. Y. Supp. 500.

[44]*Crane* v. *Baudouine*, 55 N. Y. 256; *Boyd* v. *Sappington*, 4 Watts, 247; *Rankin* v. *Beale*, 68 Mo. App. 325.

And the ability of an adult patient to pay a physician's bill for services is admissible in behalf of the defendant in an action by the physician against the patient's father, in whose house he was sick, to recover for his services to the son. *Boyd* v. *Sappington*, 4 Watts, 247.

[45]*Smith* v. *Hyde*, 19 Vt. 54.

The fact that a son-in-law was at the deathbed of his mother-in-law, rendering such services as he could, and that he knew the physicians who were attending her, and said nothing, is not alone sufficient to render him liable for their services,—especially where the estate left by the patient was amply sufficient to pay such charges. *Madden* v. *Blain*, 66 Ga. 49.

[46]*Holmes* v. *McKim*, 109 Iowa, 245, 80 N. W. 329.

And such a person is not rendered liable for the physician's services by the fact that he acquiesced in the attendance, and had, on former occasions, paid the same doctor for attending the same person, the doctor being familiar with all the circumstances. *Ibid.*

[47]*Neilson* v. *Ray*, 44 N. Y. S. R. 125, 17 N. Y. Supp. 500.

A partial emancipation of a daughter fourteen years of age, by permitting her for three years thereafter to reside thirty miles away, and control and use her own wages, without furnishing her with any money or means of support, does not exempt her father from liability for necessary services of a physician employed by her in sickness, where it does not appear that he intended to waive the right to exercise parental authority over her. *Porter* v. *Powell*, 79 Iowa, 151, 7 L. R. A. 176, 18 Am. St. Rep. 353, 44 N. W. 295.

[48]*Chappell* v. *Barkley*, 90 Mich. 35, 51 N. W. 351; *Edelman* v. *McDonell*, 126 Cal. 210, 58 Pac. 528.

A direction by a stepfather to perform medical services for a stepson, and an agreement to pay therefor, if not an original undertaking, would fall within the statute of frauds, and no recovery could be had thereon unless in writing. *Boston* v. *Farr*, 148 Pa. 220, 23 Atl. 901.

bound by bond to support the latter.[49] The rule has been laid down, however, that if a physician is called by a person to render services to any member of his family, the physician has a right to look to him for compensation, in the absence of notice that someone else is responsible.[50] And, under this rule, while a child may be under no obligation to support an aged parent, or receive him into his family, if he does receive the parent into his family, he is prima facie responsible for medical services called for by him for the benefit of the parent.[51]

470. Employment for servant or apprentice.—A master or employer is liable for the medical attendance which he procures for his servant or employee for which he agrees to pay.[52] The fact that an employee is disabled in his employment is a sufficient consideration to support a promise by the employer to pay for the nursing and medical attendance necessary to his cure.[53] And a master is bound to pay for medical attendance on an apprentice, from the very nature of the relation

[49]*Shaw* v. *Graves*, 79 Me. 166, 8 Atl. 884.

But a promise by a person to pay for medical attendance upon persons to whom he had given his bond for support is a promise to pay his own debt, and is not within the statute of frauds. *Rounsevel* v. *Osgood*, 68 N. H. 418, 44 Atl. 535.

[50]*Hentig* v. *Kernke*, 25 Kan. 559; *Grattop* v. *Rowheder*, 1 Herdman (Neb.) 660, 95 N. W. 679; *Clark* v. *Waterman*, 7 Vt. 76, 29 Am. Dec. 150. And see *Foster* v. *Meeks*, 18 Misc. 461, 41 N. Y. Supp. 950.

In *Grattop* v. *Rowheder*, 1 Herdman (Neb.) 660, 95 N. W. 679, it was held that a lady about seventy years of age who lived in a family for nine years, performing such services as she was able, and receiving the necessaries of life therefor, is a member of the family within the meaning of this rule.

[51]*Hentig* v. *Kernke*, 25 Kan. 559.

[52]*Clark* v. *Waterman*, 7 Vt. 76, 29 Am. Dec. 150; *Fraser* v. *San Francisco Bridge Co.* 103 Cal. 79, 36 Pac. 1037.

The employment by a corporation of a physician to treat a person injured in connection with its business will be presumed to be within its powers in the absence of evidence to the contrary. *Deane* v. *Gray Bros. Artificial Stone Paving Co.* 109 Cal. 433, 42 Pac. 443.

And a surgeon may hold a partnership liable for professional services rendered to an employee of a member of the firm, injured while engaged in the separate business of his employer, upon the request of all the partners. *Till Bros.* v. *Redus*, 79 Miss. 125, 29 So. 822.

And where several railroad companies, owning and operating several roads, enter into a voluntary association, and form a hospital and relief department, which is operated in connection with the business of each company, employees of each being required to be members of such department, and to contribute regularly sums deducted from their wages, one of such companies is responsible for the compensation of a physician employed by its employees in pursuance of regulations of the department to treat another employee injured by an explosion in its shops. *Florida Southern R. Co.* v. *Steen* (Fla.) 34 So. 571.

[53]*Toledo, W. & W. R. Co.* v. *Rodrigues*, 47 Ill. 188, 95 Am. Dec. 484; *Fraser* v. *San Francisco Bridge Co.* 103 Cal. 79, 36 Pac. 1037.

But a contract by a physician with a railroad company to render professional services to employees of the company, or to those to whom the company is liable for personal injuries, does not bind him to render such services to persons injured while trespassing on the property of the company. *Westmoreland County* v. *Donnelly* (Pa.) 5 Cent. Rep. 269, 7 Atl. 204.

And a company agreeing to pay for medical services rendered to a foreman in its employ has a right to make a contract by which it is to determine what shall be a reasonable charge for such services. *Fraser* v. *San Francisco Bridge Co.* 103 Cal. 79, 36 Pac. 1037.

of master and apprentice.[54] And so must a master pay the medical expenses of his slave.[55] And, under marine law, a sick or injured seaman has a right to be cured at the ship's expense; and the master is bound to furnish everything necessary to his recovery.[56] An ordinary employer, however, is, as a general rule, under no legal obligation to furnish medical attendance to his employees, in the absence of a special agreement therefor;[57] and while, if he sees fit to do so, he rests under a duty to exercise due care in the selection of the physician,[58] if he uses due care in the selection of a skilled and competent physician, and makes proper arrangements to enable a sick or injured employee to avail himself of such services, his whole duty to the employee under the contract of employment is performed.[59] And if an exigency making it the duty of an employer to employ medical or surgical assistance for an employee arises, the duty expires with the emergency.[60] A contract by an employer with his employee whereby the employer is to furnish medical attendance to the employee in case of sickness or injury while engaged in the employer's business, however, is solely for the benefit of the employee, and only incidentally for the benefit of the physician employed, and does not authorize such

[54]*Easley* v. *Craddock*, 4 Rand. (Va.) 423.

[55]*Sweet Water Mfg. Co.* v. *Glover*, 29 Ga. 399; *Dunbar* v. *Williams*, 10 Johns. 249; *Bomford* v. *Grimes*, 17 Ark. 567.

The hirer of a slave, however, and not the owner, is bound to pay a physician for his services when called to attend a slave in case of injury during the hiring, where the owner had not requested the services of a physician, or made a special agreement with the hirer as to such services. *McGee* v. *Currie*, 4 Tex. 217; *Meeker* v. *Childress*, Minor (Ala.) 109; *Watkins* v. *Bailey*, 21 Ark. 274.

And one of two persons hiring a slave is a competent witness in an action by a physician who attended the slave, against his owner for medical services rendered, to prove the understanding at the time of the hiring that the owner was to pay for medical attendance if needed. *McGee* v. *Currie*, 4 Tex. 217.

[56]*McBride* v. *Watts*, 1 M'Cord, L. 384; *Holt* v. *Cummings*, 102 Pa. 212, 48 Am. Rep. 199; *Sanders* v. *Stimson Mill Co.* 32 Wash. 627, 73 Pac. 688.

And the liability of the owner of a tugboat for services of a physician rendered to a seaman thereon, who, by the maritime law, had a right to be cured at the ship's expense, continues for services rendered, though the seaman was removed at his own request from the boat to his own home. *Holt* v. *Cummings*, 102 Pa. 212, 48 Am. Rep. 199.

[57]*Malone* v. *Robinson* (Miss.) 12 So. 709; *Terre Haute & I. R. Co.* v. *McMurray*, 98 Ind. 358, 49 Am. Rep. 752.

[58]*Big Stone Gap Iron Co.* v. *Ketron* (Va.) 9 Va. Law Reg. 906, 45 S. E. 740.

[59]*Quinn* v. *Kansas City, M. & B. R. Co.* 94 Tenn. 713, 28 L. R. A. 552, 45 Am. St. Rep. 767, 30 S. W. 1036; *South Florida R. Co.* v. *Price*, 32 Fla. 46, 13 So. 638; *Pittsburgh, C. C. & St. L. R. Co.* v. *Sullivan*, 141 Ind. 83, 27 L. R. A. 840, 50 Am. St. Rep. 313, 40 N. E. 138; *Haggerty* v. *St. Louis, K. & N. W. R. Co.* 100 Mo. App. 425, 74 S. W. 456; *Poling* v. *San Antonio & A. P. R. Co.* (Tex. Civ. App.) 75 S. W. 69; *Hanway* v. *Galveston, H. & S. A. R. Co.* 94 Tex. 76, 58 S. W. 724.

[60]*Ohio & M. R. Co.* v. *Early*, 141 Ind. 73, 28 L. R. A. 546, 40 N. E. 257.

A physician employed pursuant to the authority conferred by the regulations of a relief and hospital department of several railroad companies to treat an injured employee of one of the companies in an emergency where its surgeon could not be reached, who was employed for no definite period of time,

physician to maintain an action for services against the employer.[61] The question whether an employer employed a physician to attend an injured employee is one for the jury, where the evidence is conflicting.[62]

471. Agency in employment of physician for another.—The general rules as to agency apply to contracts for medical services made for the benefit of third persons.[63] When a person is *in extremis,* incapable of acting for himself, from the necessity of the case anyone is authorized to call a physician for him.[64] But where one with whom the contract is made owes no duty to the person to be benefited, who is competent to act, express authority should usually appear,[65] though such contracts are subject to ratification.[66] The question is one of scope

cannot recover for services rendered after being notified that his services were no longer needed, the hospital surgeon then being ready to take charge of the case, and properly treat the patient in the company's hospital. *Florida Southern R. Co.* v. *Steen* (Fla.) 34 So. 571.

[61]*Thomas Mfg. Co.* v. *Prather,* 65 Ark. 27, 44 S. W. 218.

And where, in the case of the hiring of a slave, there is an express contract between the owner and the hirer that the owner shall pay for medical services in case of sickness, and the hirer employs a physician for the slave, there is no such privity of contract between the physician and the owner as will entitle the physician to recover against the owner for the medical services rendered. *Watkins* v. *Bailey,* 21 Ark. 274.

[62]*Head* v. *American Bridge Co.* 88 Minn. 81, 92 N. W. 467.

[63] See *Montgomery Brewing Co.* v. *Caffee,* 93 Ala. 132, 9 So. 573; *Mobile & M. R. Co.* v. *Jay,* 61 Ala. 247; *Trenor* v. *Central P. R. Co.* 50 Cal. 222; *Cairo & St. L. R. Co.* v. *Mahoney,* 82 Ill. 73, 25 Am. Rep. 299; *Toledo, W. & W. R. Co.* v. *Prince,* 50 Ill. 26; *Toledo, W. & W. R. Co.* v. *Rodrigues,* 47 Ill. 188, 95 Am. Dec. 484; *Atchison & N. R. Co.* v. *Jones,* 9 Neb. 67, 2 N. W. 363; *Ellis* v. *Central P. R. Co.* 5 Nev. 255; *Shriver* v. *Stevens,* 12 Pa. 258.

[64]*Meyer.* v. *Supreme Lodge, K. of P.* (N. Y.) 64 L. R. A. 839, 70 N. E. 111.

Where an overwhelming calamity occurs to a child of an absent parent, rendering medical aid instantly necessary, and a person, comprehending the situation, secures the services of a physician, the physician not having reasonable cause to believe he was engaging his own credit, the parent will be responsible for his services as for necessaries, and the person engaging the physician will be treated as the agent of the parent in making the call. *Raoul* v. *Newman,* 59 Ga. 408.

[65]*Baker* v. *Witten,* 1 Okla. 160, 30 Pac. 491; *Malone* v. *Robinson* (Miss.) 12 So. 709. And see *White* v. *Mastin,* 38 Ala. 147; *Hanscom* v. *Minneapolis Street R. Co.* 53 Minn. 119, 20 L. R. A. 695, 54 N. W. 944.

And where a person sent his brother for a physician, and the brother, finding the physician out, called another, the latter may recover compensation for trouble incurred in an attempt to render services. *Bartlett* v. *Sparkman,* 95 Mo. 136, 6 Am. St. Rep. 35, 8 S. W. 406.

But a railroad company cannot be held liable to a physician who attended persons injured in a railroad accident, where the president of the railroad told the wounded persons to employ whatever physician they chose, and the company would pay the bill, but such statement, though known to the physician, was not made to him or in his presence. *Canney* v. *South Pacific Coast R. Co.* 63 Cal. 501.

[66] See *Marquette & O. R. Co.* v. *Taft,* 28 Mich. 289; *Scott* v. *Superior Sunset Oil Co.* (Col.) 77 Pac. 817; *Louisville, E. & St. L. R. Co.* v. *McVay,* 98 Ind. 391, 49 Am. Rep. 770; *Terre Haute & I. R. Co.* v. *Stockwell,* 118 Ind. 98, 20 N. E. 650; *Cooper* v. *New York C. & H. R. R. Co.* 6 Hun, 276.

The action of a bridge company in paying one physician for services rendered to a foreman who was injured while in charge of its work, and of

of the agent's authority. A general business manager or superintendent of a manufacturing company has no general authority to contract for medical services for an injured employee,[67] nor has the manager of a plantation.[68] But a general manager of a railroad company has authority to bind the company for medical services rendered to an employee injured by an accident on the road;[69] and so has the general superintendent of a railroad.[70] And the division superintendent will be presumed to have such authority;[71] but he is not presumed to be authorized to contract for surgical attendance on passengers whose injuries were not caused by the negligence of the company.[72] And a conductor, roadmaster, or station agent cannot bind the company for services of a surgeon in attending an injured employee, without au-

offering to pay a designated sum to another physician, is a recognition and ratification of the act of its president in making a contract for such services. *Fraser* v. *San Francisco Bridge Co.* 103 Cal. 79, 36 Pac. 1037.

But the fact that the owner of a plantation saw a physician thereon rendering medical services to his employees furnishes no ground for holding him liable for the services rendered. *Malone* v. *Robinson* (Miss.) 12 So. 709.

[67] *Swazey* v. *Union Mfg. Co.* 42 Conn. 556; *Meisenbach* v. *Southern Cooperage Co.* 45 Mo. App. 232; *Chaplin* v. *Freeland*, 7 Ind. App. 676, 34 N. E. 1007.

[68] *Malone* v. *Robinson* (Miss.) 12 So. 709.

In *Hasler* v. *Ozark Land & Lumber Co.* 101 Mo. App. 136, 74 S. W. 465, however, it was held that the jury, in an action against an employer for compensation for medical services rendered to an employee, may properly presume that the executive officer of a business corporation, at once its vice president and general manager, had authority to make a contract in behalf of the corporation for medical attendance sought to be recovered for.

[69] *Walker* v. *Great Western R. Co.* L. R. 2 Exch. 228, 15 Week. Rep. 769, 36 L. J. Exch. N. S. 123, 16 L. T. N. S. 327; *Atlantic & P. R. Co.* v. *Reisner*, 18 Kan. 458; *Louisville, E. & St. L. R. Co.* v. *McVay*, 98 Ind. 391, 49 Am. Rep. 770.

[70] *Atchison & N. R. Co.* v. *Reecher*, 24 Kan. 228; *Toledo, W. & W. R. Co.* v. *Rodrigues*, 47 Ill. 188, 95 Am. Dec. 484; *Cincinnati, I. St. L. & C. R. Co.* v. *Davis*, 126 Ind. 99, 9 L. R. A. 503, 25 N. E. 878; *McCarthy* v. *Missouri R. Co.* 15 Mo. App. 385. But see *contra*, *Stephenson* v. *New York & H. R. Co.* 2 Duer, 341.

And the fact that it was the duty of the chief surgeon of a railroad company to attend all persons injured does not affect the authority of the general superintendent to contract for the services of a physician. *Cincinnati, I. St. L. & C. R. Co.* v. *Davis*, 126 Ind. 99, 9 L. R. A. 503, 25 N. E. 878.

And a physician cannot hold the superintendent of a railroad who authorized him to take charge of a person injured in a railroad wreck, and take him to a hospital, personally liable for the services rendered, where it is clear that neither party intended that the superintendent should be personally bound, but that he contracted with a view of holding the railroad company responsible. *Michigan College of Medicine* v. *Charlesworth*, 54 Mich. 522, 20 N. W. 566.

[71] *Pacific R. Co.* v. *Thomas*, 19 Kan. 256; *Union P. R. Co.* v. *Winterbotham*, 52 Kan. 433, 34 Pac. 1052.

And where a physician agrees to submit his bills for services rendered to persons injured on the road to the superintendent of a railroad and the division surgeon for approval, approval must be shown to warrant recovery, in the absence of anything to show that it was corruptly withheld. *Union P. R. Co.* v. *Anderson*, 11 Colo. 293, 18 Pac. 24.

[72] *Union P. R. Co.* v. *Beatty*, 35 Kan. 265, 57 Am. Rep. 160, 10 Pac. 845.

thority;[73] nor can an attorney,[74] an engineer,[75] or a surgeon.[76] The employment of a surgeon by a conductor, however, is valid and binding, where the conductor is the highest representative of the company on the ground, and there is an emergency requiring immediate action.[77] And employment by a conductor is ratified, where the superintendent, after notice, permits the physician to go on and render services.[78] And generally, failure on the part of an employer, upon notice, to repudiate an unauthorized employment of a physician or surgeon for the benefit of an employee injured in his service, is deemed a ratification.[79] So, a servant left in charge of children of the master may bind him for necessary medical attendance upon them,[80] but not for attendance upon her not made necessary by the performance of her duties.[81]

[73] *Peninsular R. Co.* v. *Gary*, 22 Fla. 356, 1 Am. St. Rep. 194; *St. Louis & K. C. R. Co.* v. *Olive*, 40 Ill. App. 82; *Scvier* v. *Birmingham, S. & T. R. R. Co.* 92 Ala. 258, 9 So. 405; *St. Louis, A. & T. R. Co.* v. *Hoover*, 53 Ark. 377, 13 S. W. 1092; *Tucker* v. *St. Louis, K. C. & N. R. Co.* 54 Mo. 177; *Terre Haute & I. R. Co.* v. *McMurray*, 98 Ind. 358, 49 Am. Rep. 752; *Louisville, E. & St. L. R. Co.* v. *McVay*, 98 Ind. 391, 49 Am. Rep. 770; *Cox* v. *Midland Counties R. Co.* 3 Exch. 268, 18 L. J. Exch. N. S. 65, 13 Jur. 65.

[74] *St. Louis, A. & T. R. Co.* v. *Hoover*, 53 Ark. 377, 13 S. W. 1092.

So, neither an engine driver, nor a railway guard, nor a superintendent of the traffic department of a railway, has authority to bind the railway company for medical services rendered to a passenger injured by negligence of the company; though such power might be inferred from the conduct of the directors in ratifying other similar contracts. *Cox* v. *Midland Counties R. Co.* 3 Exch. 268, 18 L. J. Exch. N. S. 65, 13 Jur. 65.

[75] *Cooper* v. *New York C. & H. R. R. Co.* 6 Hun, 276.

[76] *Chicago & E. R. Co.* v. *Behrens*, 9 Ind. App. 575, 37 N. E. 26; *Bushnell* v. *Chicago & N. W. R. Co.* 69 Iowa, 620, 29 N. W. 753; *Burke* v. *Chicago & W. M. R. Co.* 114 Mich. 685, 72 N. W. 997.

[77] *Terre Haute & I. R. Co.* v. *McMurray*, 98 Ind. 358, 49 Am. Rep. 752; *Terre Haute & I. R. Co.* v. *Stockwell*, 118 Ind. 98, 20 N. E. 650; *Evansville & R. R. Co.* v. *Freeland*, 4 Ind. App. 207, 30 N. E. 803.

And the authority of a conductor to employ a surgeon in a case of emergency is not affected by the fact that the company has a local physician at the place in question, where the demands were so great that one surgeon could not attend to all the wounded. *Evansville & R. R. Co.* v. *Frecland*, 4 Ind. App. 207, 30 N. E. 803.

But a conductor having employed a competent surgeon in an emergency for an injured brakeman has no authority to employ additional surgeons for the same party. *Louisville, N. A. & C. R. Co.* v. *Smith*, 121 Ind. 353, 6 L. R. A. 320, 22 N. E. 775.

[78] *Terre Haute & I. R. Co.* v. *Stockwell*, 118 Ind. 98, 20 N. E. 650; *Indianapolis & St. L. R. Co.* v. *Morris*, 67 Ill. 295. And see *Pacific R. Co.* v. *Thomas*, 19 Kan. 256; *Cairo & St. L. R. Co.* v. *Mahoney*, 82 Ill. 73, 25 Am. Rep. 299; *Toledo, W. & W. R. Co.* v. *Prince*, 50 Ill. 27; *Louisville, E. & St. L. R. Co.* v. *McVay*, 98 Ind. 391, 49 Am. Rep. 770.

[79] *Mobile & M. R. Co.* v. *Jay*, 65 Ala. 113; *Scott* v. *Superior Sunset Oil Co.* (Cal.) 77 Pac. 817; *Toledo, W. & W. R. Co.* v. *Prince*, 50 Ill. 26; *Terre Haute & I. R. Co.* v. *Stockwell*, 118 Ind. 98, 20 N. E. 650. *Contra, Deane* v. *Gray Bros. Artificial Stone Paving Co.* 109 Cal. 433, 42 Pac. 443.

Where a servant becomes ill in consequence of her service, and calls in a surgeon to attend her, the wife of the master knowing of the attendance, and expressing no disapprobation, the master, afterwards sending his own surgeon, is liable for the attendance of the surgeon called in by the servant. *Cooper* v. *Phillips*, 4 Car. & P. 581.

[80] *Cooper* v. *Phillips*, 4 Car. & P. 581.

[81] *Ibid.*

And a wife, in the absence of her husband, has not implied authority to bind him for medical services rendered to an employee, or other person for whom he is not legally bound to supply such service.[82]

472. Regular physician calling counsel or assistance.—A physician called by the regular physician of a patient for consultation or to assist him may recover from the party employing the regular physician for such services, where they were received without objection, the law in such case implying a promise to pay therefor.[83] And such recovery is not prevented by an agreement between the regular physician and the patient, unknown to the consulting physician, that the attending physician should pay the consulting one.[84] But a contract by the regular physician for payment for the nursing of an injured person is not binding upon the physician's employer unless authority is shown.[85] And a regularly employed physician has no power by virtue of his employment to contract with another physician to look after his patients at the expense of his employer.[86] And though a railway conductor may employ a physician in an emergency, and bind his company, he cannot delegate his authority, and authorize the physician to employ assistants, though their employment may be necessary.[87] The right of a physician employed by the relief department of a railroad company to employ another physician is a question for the jury, where the evidence is conflicting.[88]

[82]*Baker* v. *Witten*, 1 Okla. 160, 30 Pac. 491.

[83]*Shelton* v. *Johnson*, 40 Iowa, 84; *Garrey* v. *Stadler*, 67 Wis. 512, 58 Am. Rep. 877, 30 N. W. 787. And see *Guerard* v. *Jenkins*, 1 Strobh. L. 171.

But a physician cannot recover from a patient for medical services upon the theory that he was called for consultation with the regular physician, in the absence of either allegation or proof that he rendered services at the request of any other person, except by way of inference from the fact of his visiting the patient in company with the attending physician. *Schrader* v. *Hoover*, 87 Iowa, 654, 54 N. W. 463.

And evidence of a custom prevailing among physicians and surgeons in the vicinity that, unless there was a special agreement to the contrary, a physician called to assist must look to the patient, and not the principal physician, for his pay, is inadmissible in an action against a principal physician for services, where it does not appear that the usage was known to the plaintiff, or so well settled and uniformly acted upon as to raise a presumption that it was known, and that the parties contracted with reference to it. *Fitzgerald* v. *Hanson*, 16 Mont. 474, 41 Pac. 230.

[84]*Garrey* v. *Stadler*, 67 Wis. 512, 58 Am. Rep. 877, 30 N. W. 787.

[85]*Mayberry* v. *Chicago, R. I. & P. R. Co.* 75 Mo. 492; *Bushnell* v. *Chicago & N. W. R. Co.* 69 Iowa, 620, 29 N. W. 753.

But a nurse may recover for services rendered to an injured employee of a railroad company, where he was employed by the surgeon of the company who was authorized to contract, or where he had general authority to employ nurses. *Bigham* v. *Chicago, M. & St. P. R. Co.* 79 Iowa, 534, 44 N. W. 805.

[86]*Evansville & I. R. Co.* v. *Spellbring*, 1 Ind. App. 167, 27 N. E. 239.

[87]*Terre Haute & I. R. Co.* v. *Brown*, 107 Ind. 336, 8 N. E. 218.

[88]*Haggerty* v. *St. Louis, K. & N. W. R. Co.* 100 Mo. App. 424, 74 S. W. 456.

Where a member of a relief department of a railroad sustained a fractured leg, and was given temporary treatment by a physician pending the arrival of the physician of the relief

department, and, on his arrival, he examined and approved the other's treatment, and instructed him to continue it,—the jury, in an action against the railroad company for damages resulting from improper treatment, is justified in finding that both were attending physicians of the injured person, though the physician of the relief department claimed that their conferences were mere informal talks between two doctors, and explained his visits upon the theory that his duty as medical examiner of the relief department was to visit all patients to ascertain whether they were entitled to benefit, and when they were well enough to resume work. *Ibid.*

CHAPTER XVI.

DEGREE OF CARE AND SKILL REQUIRED OF PHYSICIANS.

473. General rules.—A physician attending a patient is bound by his contract, unless otherwise provided, to possess and to bestow upon the case such reasonable and ordinary skill and diligence as physicians practising in similar localities and in the same general line of practice ordinarily exercise in like cases, time and locality being taken into account.[1] And he is bound to use his best judgment in all cases

[1]*Lawson* v. *Conaway*, 37 W. Va. 159, 18 L. R. A. 627, 38 Am. St. Rep. 17, 16 S. E. 564; *Kuhn* v. *Brownfield*, 34 W. Va. 252, 11 L. R. A. 700, 12 S. E. 519; *Burnham* v. *Jackson*, 1 Colo. App. 237, 28 Pac. 250; *Force* v. *Gregory*, 63 Conn. 167, 22 L. R. A. 343, 38 Am. St. Rep. 371, 27 Atl. 1116; *McKee* v. *Allen*, 94 Ill. App. 147; *Quinn* v. *Donovan*, 85 Ill. 194; *Ritchey* v. *West*, 23 Ill. 385; *Hallam* v. *Means*, 82 Ill. 379, 25 Am. Rep. 328; *Kendall* v. *Brown*, 86 Ill. 387; *Gramm* v. *Boener*, 56 Ind. 497; *Long* v. *Morrison*, 14 Ind. 595, 77 Am. Dec. 72; *Baker* v. *Hancock*, 29 Ind. App. 456, 63 N. E. 323, 64 N. E. 38; *Almond* v. *Nugent*, 34 Iowa, 300, 11 Am. Rep. 147; *Bowman* v. *Woods*, 1 G. Greene, 441; *Smothers* v. *Hanks*, 34 Iowa, 286, 11 Am. Rep. 141; *Dunbauld* v. *Thompson*, 109 Iowa, 199, 80 N. W. 324; *Tefft* v. *Wilcox*, 6 Kan. 46; *Pettigrew* v. *Lewis*, 46 Kan. 78, 26 Pac. 458; *Branner* v. *Stormont*, 9 Kan. 51; *Stern* v. *Lanng*, 106 La. 738, 31 So. 303; *Patten* v. *Wiggin*, 51 Me. 594, 81 Am. Dec. 593; *Cayford* v. *Wilbur*, 86 Me. 414, 29 Atl. 1117; *Ballou* v. *Prescott*, 64 Me. 305; *Dashiell* v. *Griffith*, 84 Md. 363, 35 Atl. 1094; *Hewitt* v. *Charier*, 16 Pick. 353; *Gotchell* v. *Hill*, 21 Minn. 464; *Logan* v. *Field*, 75 Mo. App. 594; *Sanderson* v. *Holland*, 39 Mo. App. 233; *Stevenson* v. *Gelsthorpe*, 10 Mont. 563, 27 Pac. 404; *Griswold* v. *Hutchinson*, 47 Neb. 727, 66 N. W. 819; *Chicago, B. & Q. R. Co.* v. *Howard*, 45 Neb. 570, 63 N. W. 872; *Hewitt* v. *Eisenbart*, 36 Neb. 795, 55 N. W. 252; *O'Hara* v. *Wells*, 14 Neb. 403, 15 N. W. 722; *Leighton* v. *Sargent*, 31 N. H. 119, 64 Am. Dec. 328; *Leighton* v. *Sargent*, 27 N. H. 460, 59 Am. Dec. 388; *Ely* v. *Wilbur*, 49 N. J. L. 685, 60 Am. Rep. 668, 10 Atl. 385, 441; *Pike* v. *Honsinger*, 155 N. Y. 201, 63 Am. St. Rep. 655, 49 N. E. 760; *Becker* v. *Jeninski*, 27 Abb. N. C. 45, 15 N. Y. Supp. 675; *Winner* v. *Lathrop*, 67 Hun, 511, 22 N. Y. Supp. 516; *Boldt* v. *Murray*, 2 N. Y. S. R. 232; *Carpenter* v. *Blake*, 10 Hun, 358, Affirmed in 75 N. Y. 12; *DuBois* v. *Decker*, 130 N. Y. 325, 14 L. R. A. 429, 27 Am. St. Rep. 529, 29 N. E. 313; *Bellinger* v. *Craigue*, 31 Barb. 534; *Gerken* v. *Plimpton*, 62 App. Div. 35, 70 N. Y. Supp. 793; *Wells* v. *World's Dispensary Medical Asso.* 9 N. Y. S. R. 452; *Doyle* v. *New York Eye & Ear Infirmary*, 80 N. Y. 631; *Tish* v. *Welker*, 5 Ohio S. & C. P. Dec. 725; *Eislein* v. *Palmer*, 7

of doubt as to the best mode or course of treatment.[2] And he is under a like obligation to bring to his aid such obtainable remedies and appliances as discovery and experience have found to be the most appropriate and beneficial in aiding recovery.[3] These rules apply to surgeons as well as physicians.[4] And the care and skill of a surgeon may be as much involved in the selection of the point of amputation or operation as in the manner of its performance.[5] And so of the selection of the time to operate.[6] And one who accepts employment as a specialist must have that degree of skill and knowledge which is ordinarily possessed by physicians engaged in that speciality, and

Ohio, S. & C. P. Dec. 365; *Tucker* v. *Gillette*, 22 Ohio, C. C. 664; *Gillette* v. *Tucker*, 67 Ohio St. 106, 93 Am. St. Rep. 639, 65 N. E. 865; *Craig* v. *Chambers*, 17 Ohio St. 253; *Geiselman* v. *Scott*, 25 Ohio St. 86; *Musser* v. *Chase*, 29 Ohio St. 577; *Bliss* v. *Long*, Wright (Ohio) 351; *Gallaher* v. *Thompson*, Wright (Ohio) 466; *Heath* v. *Glisan*, 3 Or. 64; *Potter* v. *Warner*, 91 Pa. 362, 36 Am. Rep. 668; *McCandless* v. *McWha*, 22 Pa. 261; *Haire* v. *Reese*, 7 Phila. 138; *Braunberger* v. *Cleis* (Pa.) 4 Am. L. Reg. N. S. 587; *Wohlert* v. *Seibert*, 23 Pa. Super. Ct. 213; *English* v. *Free*, 205 Pa. 624, 55 Atl. 777; *Alder* v. *Buckley*, 1 Swan. 69; *Wood* v. *Clapp*, 4 Sneed, 65; *Wilmot* v. *Howard*, 39 Vt. 447, 94 Am. Dec. 338; *Mullin* v. *Flanders*, 73 Vt. 95, 50 Atl. 813; *Hathorn* v. *Richmond*, 48 Vt. 557; *Reynolds* v. *Graves*, 3 Wis. 416; *Gates* v. *Fleischer*, 67 Wis. 504, 30 N. W. 674; *Nelson* v. *Harrington*, 72 Wis. 591, 1 L. R. A. 719, 7 Am. St. Rep. 900, 40 N. W. 228.

But the obligation of a physician to exercise ordinary care and skill arises, not so directly from the contract of the employment as from the duty imposed upon him by law, which requires him in the exercise of a skilled and privileged profession to use the requisite degree of skill and care. *Styles* v. *Tyler*, 64 Conn. 432, 30 Atl. 165.

And the duty on the part of a physician called to attend a patient, to exercise a reasonable degree of care and skill, results from the character in which he assumes to act. *Peck* v. *Martin*, 17 Ind. 115.

[2]*Burnham* v. *Jackson*, 1 Colo. App. 237, 28 Pac. 250; *Leighton* v. *Sargent*, 27 N. H. 460, 59 Am. Dec. 388; *Carpenter* v. *Blake*, 10 Hun, 358; *Patten* v. *Wiggin*, 51 Me. 594, 81 Am. Dec. 593; *Cayford* v. *Wilbur*, 86 Me. 414, 29 Atl. 1117; *Williams* v. *Poppleton*, 3 Or. 139; *Heath* v. *Glisan*, 3 Or. 64; *Mallen* v. *Boynton*, 132 Mass. 443.

[3]*Stevenson* v. *Gelsthorpe*, 10 Mont. 563, 27 Pac. 404.

[4]*Wright* v. *Hardy*, 22 Wis. 348; *McCandless* v. *McWha*, 22 Pa. 261; *Hallam* v. *Means*, 82 Ill. 379, 25 Am. Rep. 328; *State use of Janney* v. *Housekeeper*, 70 Md. 162, 2 L. R. A. 587, 14 Am. St. Rep. 340, 16 Atl. 382; *Pike* v. *Honsinger*, 155 N. Y. 201, 63 Am. St. Rep. 655, 49 N. E. 760; *Graves* v. *Santway*, 2 Silv. Sup. Ct. 67, 6 N. Y. Supp. 892; *DuBois* v. *Decker*, 130 N. Y. 325, 14 L. R. A. 429, 27 Am. St. Rep. 529, 29 N. E. 313.

And an instruction in an action for malpractice, requiring of the defendant the use of appliances and instrumentalities ordinarily used by surgeons of good standing and reasonable and ordinary skill, is not subject to objection that it would preclude the use of any better or improved appliances, where there was no claim that unusual appliances had been employed. *Prichard* v. *Moore*, 75 Ill. App. 553.

[5]*Wright* v. *Hardy*, 22 Wis. 348; *Graves* v. *Santway*, 2 Silv. Sup. Ct. 67, 6 N. Y. Supp. 892.

[6]*DuBois* v. *Decker*, 130 N. Y. 325, 14 L. R. A. 429, 27 Am. St. Rep. 529, 29 N. E. 313; *Hallam* v. *Means*, 82 Ill. 379, 25 Am. Rep. 328.

From the time a surgeon employed to perform an operation opens the body of his patient with his knife, until he closes, in a proper way, the wound made, the law imposes upon him the duty of exercising, not only due care, but due skill as well. He must not only know what to do, but he must do it in a careful and skilful manner. *Akridge* v. *Noble*, 114 Ga. 949, 41 S. E. 78.

must exercise his best judgment in the application of his skill and in the use of ordinary care.[7] The physician or surgeon does not undertake, however, to use the highest possible degree of skill.[8] He merely undertakes to exercise a fair, reasonable, and competent degree[9] such as physicians and surgeons ordinarily exercise in the treatment of their patients,[10] and such as will enable them to treat the case in hand

[7]*Feeney* v. *Spalding*, 89 Me. 111, 35 Atl. 1027; *McMurdock* v. *Kimberlin*, 23 Mo. App. 523; *Baker* v. *Hancock*, 29 Ind. App. 456, 63 N. E. 323, 64 N. E. 38; *Stern* v. *Lanng*, 106 La. 738, 31 So. 303.

One who holds himself out to another as a veterinary surgeon contracts to supplement reasonable care and honest endeavor with ordinary professional skill. *Conkey* v. *Carpenter*, 106 Mich. 1, 63 N. W. 990.

And a dentist is required to use a reasonable degree of care and skill in the manufacture and fitting of artificial teeth. *Simonds* v. *Henry*, 39 Me. 155, 63 Am. Dec. 611.

And the rule of liability of a physician and surgeon for negligence and unskilfulness in applying Roentgen or X rays for the purpose of locating a foreign substance thought to be in a patient's lungs is the same as that applying in other actions for malpractice, which is one of ordinary care and prudence. *Henslin* v. *Whcaton* (Minn.) 64 L. R. A. 126, 97 N. W. 882.

[8]*Lamphier* v. *Phipos*, 8 Car. & P. 475; *Grannis* v. *Branden*, 5 Day, 260, 5 Am. Dec. 143; *Landon* v. *Humphrey*, 9 Conn. 209, 23 Am. Dec. 333; *Quinn* v. *Donovan*, 85 Ill. 194; *Holtzman* v. *Hoy*, 118 Ill. 534, 59 Am. Rep. 390, 8 N. E. 832; *Ritchey* v. *West*, 23 Ill. 385; *Utley* v. *Burns*, 70 Ill. 162; *Fisher* v. *Niccolls*, 2 Ill. App. 484; *McKee* v. *Allen*, 94 Ill. App. 147; *Smothers* v. *Hanks*, 34 Iowa, 286, 11 Am. Rep. 141; *Almond* v. *Nugent*, 34 Iowa, 300, 11 Am. Rep. 147; *Howard* v. *Grover*, 28 Me. 97, 48 Am. Dec. 478; *Patten* v. *Wiggin*, 51 Me. 594, 81 Am. Dec. 593; *Simonds* v. *Henry*, 39 Me. 155, 63 Am. Dec. 611; *Getchell* v. *Lindley*, 24 Minn. 265; *Getchell* v. *Hill*, 21 Minn. 464; *Pike* v. *Honsinger*, 155 N. Y. 201, 63 Am. St. Rep. 655, 49 N. E. 760; *Griswold* v. *Hutchinson*, 47 Neb. 727, 66 N. W. 819; *Van Skike* v. *Potter*, 53 Neb. 28, 73 N. W. 295; *Tish* v. *Welker*, 5 Ohio. S. & C. P. Dec. 725; *Braunberger* v. *Cleis* (Pa.) 4 Am. Law Reg. N. S. 587; *Wohlert* v. *Seibert*, 23 Pa. Super. Ct. 213; *Wood* v. *Clapp*, 4 Sneed, 65; *Alder* v. *Buckley*, 1 Swan, 68; *Rich* v. *Pierpont*, 3 Fost. & F. 35.

And the exercise of the highest perfection of his art is not implied in the professional contract of a dentist. *Simonds* v. *Henry*, 39 Me. 155, 63 Am. Dec. 611.

[9]*Lamphier* v. *Phitos*, 8 Car. & P. 475; *Utley* v. *Burns*, 70 Ill. 162; *Fisher* v. *Niccolls*, 2 Ill. App. 484; *Sims* v. *Parker*, 41 Ill. App. 284; *Peck* v. *Martin*, 17 Ind. 115; *Branner* v. *Stormont*, 9 Kan. 51; *Howard* v. *Grover*, 28 Me. 97, 48 Am. Rep. 478; *Vanhooser* v. *Berghoff*, 90 Mo. 487, 3 S. W. 72; *Heese* v. *Knippel*, 1 Mich. N. P. 109; *O'Hara* v. *Wells*, 14 Neb. 403, 15 N. W. 722; *Quinn* v. *Higgins*, 63 Wis. 664, 53 Am. Rep. 305, 24 N. W. 482; *Reynolds* v. *Graves*, 3 Wis. 416.

[10]*State use of Janney* v. *Housekeeper*, 70 Md. 162, 2 L. R. A. 587, 14 Am. St. Rep. 340, 16 Atl. 382; *Dashiell* v. *Griffith*, 84 Md. 363, 35 Atl. 1094; *McDonald* v. *Harris*, 131 Ala. 359, 31 So. 548; *Hallam* v. *Means*, 82 Ill. 379, 25 Am. Rep. 328; *Sims* v. *Parker*, 41 Ill. App. 284; *Utley* v. *Burns*, 70 Ill. 162; *Ritchey* v. *West*, 23 Ill. 385; *Thomas* v. *Dabblemont*, 31 Ind. App. 146, 67 N. E. 463; *Smothers* v. *Hanks*, 34 Iowa, 286, 11 Am. Rep. 147; *Almond* v. *Nugent*, 34 Iowa, 300, 11 Am. Rep. 147; *Whitesell* v. *Hill*, 101 Iowa, 629, 37 L. R. A. 830, 70 N. W. 750, 66 N. W. 894; *Simonds* v. *Henry*, 39 Me. 155, 63 Am. Dec. 611; *Sanderson* v. *Holland*, 39 Mo. App. 234; *Vanhooser* v. *Berghoff*, 90 Mo. 487, 3 S. W. 72; *Becker* v. *Janinski*, 27 Abb. N. C. 45, 15 N. Y. Supp. 675; *Pike* v. *Honsinger*, 155 N. Y. 201, 63 Am. St. Rep. 655, 49 N. E. 760; *Barney* v. *Pinkham*, 29 Neb. 350, 26 Am. St. Rep. 389, 45 N. W. 694; *Van Skike* v. *Potter*, 53 Neb. 28, 73 N. W. 295; *Havens* v. *Hardesty*, 18 Ohio C. C. 891; *Gallaher* v. *Thompson*, Wright (Ohio) 466; *Heath* v. *Glisan*, 3 Or. 64; *Wohlert* v. *Seibert*, 23 Pa. Super. Ct. 213; *Wood* v. *Clapp*, 4 Sneed. 65; *Wilkins* v. *Ferrell*, 10 Tex. Civ. App. 231, 30 S. W. 450.

The measure of skill required of a

understandingly and safely;[11] though something more is necessary than mere average merit.[12]

The question as to what constitutes reasonable and ordinary care and skill upon the part of a physician or surgeon must be determined in each case from all the circumstances;[13] and there is no substantial difference in the words "ordinary" and "reasonable" in defining the care and skill required.[14] Skilful treatment by a physician or surgeon includes diligence and care, as well as the use of skill,[15] and the

physician or surgeon is that ordinarily exercised by the members of the profession as a whole, and not that exercised by the thoroughly educated, or even the moderately educated, or well educated. *Smothers* v. *Hanks*, 34 Iowa, 287, 11 Am. Rep. 141; *Hitchcock* v. *Burgett*, 38 Mich. 501.

And a plea in an action for recovery of compensation for medical services rendered, that the said services were not rendered in a skilful and competent manner, is demurrable as requiring a verdict for the defendant upon proof that the plaintiff did not exercise the highest degree of skill, and that he was not in the highest degree competent in his profession. *McDonald* v. *Harris*, 131 Ala. 359, 31 So. 548.

[11]*Patten* v. *Wiggin*, 51 Me. 594, 81 Am. Dec. 583.

[12]*Holtzman* v. *Hoy*, 118 Ill. 534, 59 Am. Rep. 390, 8 N. E. 832. And see *Lewis* v. *Dwinell*, 84 Me. 497, 24 Atl. 945; *Moratzky* v. *Wirth*, 67 Minn. 46, 69 N. W. 480.

A physician is bound to a greater degree of care in the practice of his profession, dealing with human life, than is required of one dealing with property. *Hesse* v. *Knippel*, 1 Mich. N. P. 109.

But failure of a surgeon, undertaking to perform an operation upon a woman, to discover the fact of pregnancy, by reason of which she suffers a miscarriage, is not negligence, unless her condition was so apparent that it could have been detected by the exercise of reasonable judgment and intelligence, and ordinary diligence on his part. *Langford* v. *Jones*, 18 Or. 307, 22 Pac. 1064.

[13]*Braunberger* v. *Cleis* (Pa.) 4 Am. L. Reg. N. S. 587.

It is sometimes the case that the best and most appropriate appliances or remedies may be very simple and commonplace, and that it is the highest type of skill which applies these simple things to aid nature in its healing processes. *Stevenson* v. *Gelsthorpe*, 10 Mont. 563, 27 Pac. 404.

[14]*Kendall* v. *Brown*, 74 Ill. 232; *Ritchey* v. *West*, 23 Ill. 385; *Carpenter* v. *Blake*, 60 Barb. 488.

And defining ordinary skill as the skill which a physician would, under the circumstances of the case, reasonably use in treating the case, leaving the facts to the jury in an action against a physician for malpractice, is not reversible error, in the absence of a request for more explicit instructions. *Boone* v. *Murphy*, 108 N. C. 187, 12 S. E. 1032.

And a requirement by the court in its charge of a fair knowledge and skill upon the part of a physician is not erroneous, where, in another part of the charge, the court characterizes the necessary knowledge as fair and ordinary. *Jones* v. *Angell*, 95 Ind. 376.

So, the word "regular" and the words "skilful and efficient" are synonymous as used in an instruction that a physician in order to recover for his services must prove that he is a skilful and efficient physician. *Mays* v. *Hogan*, 4 Tex. 26.

[15]*Graham* v. *Gautier*, 21 Tex. 112; *Akridge* v. *Noble*, 114 Ga. 949, 41 S. E. 78. And see *Spaulding* v. *Bliss*, 83 Mich. 311, 47 N. W. 210.

Where a surgeon performs an operation upon a patient which requires him to insert into her body through the opening made, sponges or pads for the purpose of absorbing the blood and pus in the cavity, which sponges or pads should remain in the body while the operation is being performed, but should be removed therefrom before the opening is closed, his duty to exercise care and skill extends to the removal of the sponges or pads as a part of the operation. *Akridge* v. *Noble*, 114 Ga. 949, 41 S. E. 78.

And a physician, in passing from patients infected with contagious diseases to others who are not so infected, must

exercise of proper judgment in informing the patient as to his ailment and condition.[16] And ordinary care and skill include such care and skill in determining when attendance may be safely and properly discontinued.[17] And the duty of the physician extends not only to diagnosis and treatment, but also to proper instructions as to the patient's comfort and management.[18] But the care, diligence, and skill required relate to professional duties, and not to nursing and providing necessaries, etc. He is not bound to nurse his patients and provide for them, though he is required to instruct others how to do it.[19] And a physician or surgeon is not chargeable with ignorance of a case if he prescribes for or treats it properly and correctly.[20] If a patient is delirious, and cannot be made to understand the necessity of the proposed treatment, his physician or surgeon may co-operate with the patient's immediate family, and resort to reasonable force.[21]

474. With reference to established practice.—Physicians are bound by what is universally settled in the profession; and where a particular mode of treatment is upheld by the consensus of opinion among

take such precautions as experience must have shown to be necessary to prevent the communication of the infection. *Piper* v. *Menifee*, 12 B. Mon. 465, 54 Am. Dec. 547.

[16] See *Hedin* v. *Minneapolis Medical & Surgical Inst.* 62 Minn. 146, 35 L. R. A. 417, 54 Am. St. Rep. 628, 64 N. W. 158; *Logan* v. *Field*, 75 Mo. App. 594.

It is competent, however, in an action for malpractice, to prove that it is good medical treatment in some cases for physicians to withhold from patients their actual condition or the extent of their injury. *Twombly* v. *Leach*, 11 Cush. 398.

And the act of a surgeon in purposely refracturing a broken arm of his patient without informing him of the nature of the operation does not alone establish that he was guilty of bad surgery. *Boydston* v. *Giltner*, 3 Or. 118.

And a physician called upon to perform an operation who leaves a broken needle in the patient's body is not under duty to tell her of it when to do so would be to endanger the success of the operation; but he should tell her upon discharging her from his care as his patient. *Eislein* v. *Palmer*, 7 Ohio S. & C. P. Dec. 365, 5 Ohio N. P. 325.

And where a surgeon employed by a railroad company tells a passenger injured in a collision that his injuries are slight, by reason of which the passenger accepts a small sum in compensation, the passenger has no ground of action against the surgeon, though his injuries were much greater than he was led to suppose. *Pimm* v. *Roper*, 2 Fost. & F. 783.

[17] *Ballou* v. *Prescott*, 64 Me. 305; *Williams* v. *Gilman*, 71 Me. 21; *Mucci* v. *Houghton*, 89 Iowa, 608, 57 N. W. 305; *Dashiell* v. *Griffith*, 84 Md. 363, 35 Atl. 1094; *Tucker* v. *Gillette*, 22 Ohio C. C. 664, Affirmed in 67 Ohio St. 106, 93 Am. St. Rep. 639, 65 N. E. 865.

[18] *Pike* v. *Honsinger*, 155 N. Y. 201, 63 Am. St. Rep. 655, 49 N. E. 760; *Graves* v. *Santway*, 2 Silv. Sup. Ct. 67, 6 N. Y. Supp. 892; *Tish* v. *Welker*, 5 Ohio S. & C. P. Dec. 725; *State* v. *Power*, 24 Wash. 34, 63 L. R. A. 902, 63 Pac. 1112.

And, in the absence of an understanding to the contrary, it is the duty of a veterinary surgeon employed to perform an operation upon an animal, incident to the performance of the operation itself, to direct what shall be done to prevent injurious results that might naturally follow, and to give his personal attention to such matters so far as they fall within the ordinary scope of his calling. *Williams* v. *Gilman*, 71 Me. 21.

[19] *Graham* v. *Gautier*, 21 Tex. 111.

[20] *Fowler* v. *Sergeant*, 1 Grant, Cas. 355.

[21] *Littlejohn* v. *Arbogast*, 95 Ill. App. 605.

the members of the medical profession, it should be followed by the ordinary practitioner.[22] If the settled practice of the profession allows but one course of treatment in a case, any departure from such course may properly be regarded as the result of the want of knowledge, skill, and experience, or attention.[23] And it is immaterial how much skill the physician possessed, since his failure to exercise it constitutes negligence.[24] A physician cannot try experiments with his patients to their injury.[25] If the condition of the patient was such, however, that the ordinary course of treatment would be injurious or could not be endured, failure to resort to it does not show negligence or want of skill.[26] And it is the universally settled practice which controls; the mere fact that writers or surgeons recommend a certain mode of treatment does not make it incumbent upon all to adopt that mode.[27]

475. With reference to particular school.—The skill of physicians and surgeons is to be judged by the school of practice to which they belong.[28] All that they undertake is that they will faithfully treat

[22]*Burnham* v. *Jackson*, 1 Colo. App. 237, 28 Pac. 250; *Jackson* v. *Burnham*, 20 Colo. 532, 39 Pac. 577; *Tefft* v. *Wilcox*, 6 Kan. 46; *Mucci* v. *Houghton*, 89 Iowa, 608, 57 N. W. 305; *Carpenter* v. *Blake*, 60 Barb. 488. *Burnham* v. *Jackson*, 1 Colo. App. 237, 28 Pac. 250, was reversed by the Supreme Court on a question of practice.

Where a case is one as to which a system of treatment has been followed for a long time, there should be no departure from it, unless the surgeon who does so is prepared to take the risk of establishing, by his success, the safety of his experiment. *Carpenter* v. *Blake*, 60 Barb. 488.

[23]*Patten* v. *Wiggin*, 51 Me. 594, 81 Am. Dec. 593; 2 Esp. N. P. Dig. Pt. 2, p. 601; *Jones* v. *Fay*, 4 Fost. & F. 525.

To be free from liability, however, a physician or surgeon need not necessarily adopt precisely the same remedy that every other skilful member of the profession uses for a like condition; but he must, in the main, observe and take the benefit of the past experience and learning of the profession, and adopt them as a rule of action rather than new and experimental methods. *Wells* v. *World's Dispensary Medical Asso.* 9 N. Y. S. R. 452.

[24]*Jackson* v. *Burnham*, 20 Colo. 532, 39 Pac. 577; *Carpenter* v. *Blake*, 60 Barb. 488.

But, while the failure to use skill, if a physician or surgeon has it, may be negligence, when the treatment adopted is not in accordance with established practice, but is positively injurious, the case is not one of negligence, but one of want of skill. *Carpenter* v. *Blake*, 60 Barb. 488.

[25]*Hesse* v. *Knippel*, 1 Mich. N. P. 109; *Gardner* v. *Tatum*, 81 Cal. 370, 22 Pac. 880; *Jackson* v. *Burnham*, 20 Colo. 532, 39 Pac. 577; *Slater* v. *Baker*, 2 Wils. 359.

[26]*Hallam* v. *Means*, 82 Ill. 379, 25 Am. Rep. 328.

Directing a person with a broken arm to bathe it in wormwood and vinegar, although condemned by experts, is not such a departure from the established practice as will justify a recovery against the surgeon ordering it, there being nothing to show that it has caused injury. *Winner* v. *Lathrop*, 67 Hun, 511, 22 N. Y. Supp. 516.

[27]*Burnham* v. *Jackson*, 1 Colo. App. 237, 28 Pac. 250.

[28]*Force* v. *Gregory*, 63 Conn. 167, 22 L. R. A. 343, 38 Am. St. Rep. 371, 27 Atl. 1116; *Bowman* v. *Woods*, 1 G. Greene, 441; *Patten* v. *Wiggin*, 51 Me. 594, 81 Am. Dec. 593; *Martin* v. *Courtney*, 75 Minn. 255, 77 N. W. 813; *Nelson* v. *Harrington*, 72 Wis. 591, 1 L. R. A. 719, 7 Am. St. Rep. 900, 40 N. W. 228.

the case in hand according to the recognized rules of their particular school.[29] And one who professes to adhere to a particular school of practice must come up to its average standard at least.[30] Clairvoyant physicians, however, who rely exclusively for diagnosis upon some occult influence or mental intuition received when in an abnormal condition, do not constitute a school, and must be held to the duty of treating their patients with the ordinary skill and knowledge of physicians of good standing practising in the vicinity.[31] And the same rules apply to magnetic healing.[32] And a physician who applies the X rays to a person, not for medical purposes, but to locate a foreign substance in the body of his patient, is not entitled to have the question of his care and skill in applying it determined by the opinion of physicians of his own school.[33]

476. With reference to locality.—The standard of ordinary care of physicians and surgeons may vary even in the same state according to the greater or less opportunities afforded by the locality for observation and practice;[34] and it has been held by a number of the cases that a physician is required to use no more skill than that of the physicians of his neighborhood, if there be others, presumably of average ability.[35] But the rule has also been stated to be that the degree of knowledge, skill, and care required of a physician or surgeon is that which is ordinarily possessed by those practising in similar localities, and is not necessarily limited to that which is in fact exercised in his particular locality.[36] And a physician practising in a small village

[29]*Patten* v. *Wiggin*, 51 Me. 594, 81 Am. Dec. 593; *Williams* v. *Poppleton*, 3 Or. 139; *Wurdemann* v. *Barnes*, 92 Wis. 208, 66 N. W. 111.

And it is not for the court or for the jury in an action for malpractice with reference to such treatment, to determine whether one particular system is the best, or to decide questions of surgical science upon which surgeons differ among themselves. *Williams* v. *Poppleton*, 3 Or. 139; *Force* v. *Gregory*, 63 Conn. 167, 22 L. R. A. 343, 38 Am. St. Rep. 371, 27 Atl. 1116; *Bowman* v. *Woods*, 1 G. Greene, 441.

[30]*Hesse* v. *Knippel*, 1 Mich. N. P. 109.

[31]*Nelson* v. *Harrington*, 72 Wis. 591, 1 L. R. A. 719, 7 Am. St. Rep. 900, 40 N. W. 228.

[32]*Longan* v. *Weltmer* (Mo.) 64 L. R. A. 969, 79 S. W. 655.

And the plaintiff in an action for malpractice against a magnetic healer, though the action is based solely upon negligent treatment, is not required in order to recover, to show that the kind and manner of the treatment adopted were not proper or usual in magnetic healing. *Ibid.*

[33]*Henslin* v. *Wheaton* (Minn.) 64 L. R. A. 126, 97 N. W. 882.

[34]*Smothers* v. *Hanks*, 34 Iowa, 289, 11 Am. Rep. 141.

[35]*Force* v. *Gregory*, 63 Conn. 167, 22 L. R. A. 343, 38 Am. St. Rep. 371, 27 Atl. 1116; *Hathorn* v. *Richmond*, 48 Vt. 577; *Mullin* v. *Flanders*, 73 Vt. 95, 50 Atl. 813; *Lawson* v. *Conaway*, 37 W. Va. 159, 18 L. R. A. 627; 38 Am. St. Rep. 17, 16 S. E. 564; *Wurdemann* v. *Barnes*, 92 Wis. 206, 66 N. W. 111; *Nelson* v. *Harrington*, 72 Wis. 591, 1 L. R. A. 719, 7 Am. St. Rep. 909, 40 N. W. 228; *Gates* v. *Fleischer*, 67 Wis. 504, 30 N. W. 674.

[36]*Whitesell* v. *Hill*, 101 Iowa, 629, 37 L. R. A. 830, 70 N. W. 750, 66 N. W. 894; *Dunbauld* v. *Thompson*, 109 Iowa, 199, 80 N. W. 324; *Gramm* v. *Boener*, 56 Ind. 497; *Kelsey* v. *Hay*, 84 Ind. 189;

who undertakes to perform a difficult operation is bound to possess only that skill and ability which physicians and surgeons of ordinary ability and skill practising in similar localities with opportunities for no larger experience ordinarily possess; he is not bound to possess that high degree of art and skill possessed by eminent physicians and surgeons practising in large cities.[37]

477. With reference to state of profession.—By ordinary skill required of a physician is meant such skill as is commonly possessed by men engaged in the profession; and this will depend largely upon the state of the science and the means of education at the particular period.[38] And it need not be that of thoroughly educated persons only, but must be that of the average, having regard to improvement, and the advanced state of the profession at the time of the treatment,[39] without reference to conditions in the past or at some other time.[40]

478. Effect of gratuitous service.—The law requires the same degree of care and diligence of a physician or surgeon when his services are rendered gratuitously as when he receives compensation therefor;[41]

Bocknell v. *Hosier*, 10 Ind. App. 5, 37 N. E. 580; *Pelky* v. *Palmer*, 109 Mich. 561, 67 N. W. 561; *McCracken* v. *Smathers*, 122 N. C. 799, 29 S. E. 354.

The skill required of a physician in treating a dislocated and broken bone is not limited to that of ordinarily skilful and prudent physicians of the vicinity, if that does not equal the skill and prudence possessed by physicians in similar communities. *Burk* v. *Foster*, 24 Ky. L. Rep. 791, 59 L. R. A. 277, 69 S. W. 1096.

So, the care and skill required of a dentist, though not necessarily the highest known to the profession, is not limited to such as is exercised by dentists in his own neighborhood, but must be such as is ordinarily possessed by the average of his profession. *McCracken* v. *Smathers*, 122 N. C. 799, 29 S. E. 354.

But an instruction in an action for malpractice, that the physician was bound to use such care, skill, and diligence as physicians an dsurgeons in the neighborhood where he resided, and where he practised, and who were engaged in the same general line of practice, ordinarily have and exercise in like cases, is not reversible error, where the defendant resided in a city in which there were other physicians presumably of average ability when compared with similar localities. *Pelky* v. *Palmer*, 109 Mich. 561, 67 N. W. 561.

[37] *Small* v. *Howard*, 128 Mass. 131, 35 Am. Rep. 363.

[38] *Hewitt* v. *Charier*, 16 Pick. 353; *Tefft* v. *Wilcox*, 6 Kan. 62; *Simonds* v. *Henry*, 39 Me. 155, 63 Am. Dec. 611; *McCandless* v. *McWha*, 22 Pa. 261; *Baker* v. *Hancock*, 29 Ind. App. 456, 63 N. E. 323, 64 N. E. 38.

More than an ordinary degree of skill is necessary for a surgeon who undertakes to perform surgical operations. *Slater* v. *Baker*, 2 Wils. 359; *Seare* v. *Prentice*, 8 East, 352.

[39] *Peck* v. *Hutchinson*, 88 Iowa, 320, 55 N. W. 511; *Smothers* v. *Hanks*, 34 Iowa, 289, 11 Am. Rep. 141; *Almond* v. *Nugent*, 34 Iowa, 300, 11 Am. Rep. 147; *Force* v. *Gregory*, 63 Conn. 167, 22 L. R. A. 343, 38 Am. St. Rep. 371, 27 Atl. 1116; *Hitchcock* v. *Burgett*, 38 Mich. 501; *Pike* v. *Honsinger*, 155 N. Y. 201, 63 Am. St. Rep. 655, 49 N. E. 760; *McCracken* v. *Smathers*, 122 N. C. 799, 29 S. E. 354; *Haire* v. *Reese*, 7 Phila. 138; *Nelson* v. *Harrington*, 72 Wis. 591, 1 L. R. A. 719; 7 Am. St. Rep. 909, 40 N. W. 228; *Gates* v. *Fleischer*, 67 Wis. 504, 30 N. W. 674.

[40] *McCracken* v. *Smathers*, 122 N. C. 799, 29 S. E. 354.

[41] *Peck* v. *Hutchinson*, 88 Iowa, 320, 55 N. W. 511; *McNevins* v. *Lowe*, 40 Ill. 209; *Becker* v. *Janinski*, 27 Abb. N. C. 45, 15 N. Y. Supp. 675; *Edwards* v. *Lamb*, 69 N. H. 599, 50 L. R. A. 160, 45

and the fact that no bill for services was rendered is immaterial.[42] The rule is different, however, where the person rendering the services did not profess to be a physician;[43] though one falsely assuming to be a physician, and qualified as such, who undertakes to treat another for a disease, is liable for an injury caused by his ignorance or improper treatment.[44]

479. Duty in case of doubt.—If, when called upon, a physician deems himself incompetent to treat the case, he should recommend the employment of another physician.[45] And if he deems himself competent, but is uncertain or in doubt as to the nature and extent of the injury or disease, he must use his best judgment as to whether or not he should consult some other physician or surgeon.[46] But, having assumed the charge of a case, the measure of professional skill which the physician is bound to exercise does not depend upon whether or not he refused the proffered assistance of other medical men.[47] And a physician exercising proper care cannot be held liable for failure to send for a specialist to attend to a matter other than that for which he was employed, though he had promised to do so.[48]

Atl. 480; *Gladwell* v. *Steggall*, 5 Bing. N. C. 733, 8 Scott, 60, 8 L. J. C. P. N. S. 361, 3 Jur. 535. *Contra, Conner* v. *Winton*, 8 Ind. 315, 65 Am. Dec. 761; *Ritchey* v. *West*, 23 Ill. 385.

[42]*Baird* v. *Gillett*, 47 N. Y. 186; *DuBois* v. *Decker*, 130 N. Y. 325, 14 L. R. A. 429, 25 Am. St. Rep. 529, 29 N. E. 313.

[43]*Higgins* v. *McCabe*, 126 Mass. 13, 30 Am. Rep. 642; *McNevins* v. *Lowe*, 40 Ill. 209; 2 Esp. N. P. Dig. Pt. 2, p. 601.

While a physician must apply the skill and learning which belong to his profession, the person who, without special qualification, volunteers to attend the sick, will, at most, only be required to exercise the skill and diligence usually bestowed by persons of like qualifications under like circumstances. *Higgins* v. *McCabe*, 126 Mass. 13, 30 Am. Rep. 642.

[44]*Ruddock* v. *Lowe*, 4 Fost. & F. 519.

A midwife called to attend a mother whose child appeared to have a disease of the eyes at birth, who represented that she could cure the child with simple remedies and washes, and that she had cured other children in that way who were similarly afflicted, and that there was no need of a doctor, merely expresses an opinion as to the efficacy of her remedies, and does not undertake to use the higher skill of the medical profession which is required of practitioners in the treatment of the more complicated and delicate organs, so as to render her liable where the child became blind, when with proper treatment, its eyesight might have been saved. *Higgins* v. *McCabe*, 126 Mass. 13, 30 Am. Rep. 642.

[45]*Mallen* v. *Boynton*, 132 Mass. 443.

[46]*Ibid.*

[47]*Potter* v. *Warner*, 91 Pa. 362, 36 Am. Rep. 668.

[48]*Jones* v. *Vroom*, 8 Colo. App. 143, 45 Pac. 234.

CHAPTER XVII.

COMPENSATION UNDER ORDINARY CONTRACT OF EMPLOYMENT.

I. Right to, generally.

480. The common-law rule.—In England under the common law, physicians could not maintain action to recover fees for medical services. Owing to the credit and rank of the body of physicians, fees were regarded as honorable, and not demandable of right.[1] And this rule applied to an unlicensed person professing to act as a physician, as well as to regularly licensed physicians.[2] It was lawful, however, for a physician to accept an honorarium or gratuity.[3] And a recovery might be had on a special contract for such services,[4] or on notes,

[1] *Starrett* v. *Miley*, 79 Ill. App. 658; *Judah* v. *M'Namee*, 3 Blackf. 269; *McPherson* v. *Cheadell*, 24 Wend. 15; *Mooney* v. *Lloyd*, 5 Serg. & R. 412; *Graham* v. *Gautier*, 21 Tex. 111; *Lipscombe* v. *Holmes*, 2 Campb. 441; *Chorley* v. *Bolcot*, 4 T. R. 317; 2 Revised Rep. 395; *Poucher* v. *Norman*, 3 Barn. & C. 745, 5 Dowl. & R. 648, 3 L. J. K. B. 115; *Gibbon* v. *Budd*, 2 Hurlst. & C. 92, 32 L. J. Exch. N. S. 182, 9 Jur. N. S. 525, 8 L. T. N. S. 321, 11 Week. Rep. 626; *Little* v. *Oldaker*, Car. & M. 370.

So, a physician could not at common law recover his traveling expenses incurred in visiting a patient as money paid to the patient's use, since such payments were made to the physician's own use in the ordinary exercise of his profession. *Veitch* v. *Russell*, 3 Q. B. 928, 3 Gale & D. 198, Car. & M. 362, 12 L. J. Q. B. N. S. 13, 7 Jur. 60.

[2] *Lipscombe* v. *Holmes*, 2 Campb. 441; *Hupe* v. *Phelps*, 2 Starkie, 480, 20 Revised Rep. 726.

[3] *Mooney* v. *Lloyd*, 5 Serg. & R. 412; *Gibbon* v. *Budd*, 2 Hurlst. & C. 92, 32 L. J. Exch. N. S. 182, 9 Jur. N. S. 525, 8 L. T. N. S. 321, 11 Week. Rep. 626.

[4] *Gibbon* v. *Budd*, 2 Hurlst. & C. 92,

bonds, or other obligations given therefor.[5] Nor were surgeons and apothecaries regarded as belonging to the same class as physicians; and they were entitled to recover for services rendered.[6] And a physician who acted in the double capacity of physician and surgeon in attending a patient, or in any other capacity than that of physician, was not prevented from recovering compensation for his services in the other capacity by the fact that he also acted as physician.[7] And a surgeon may recover for medicines given, when the giving was incidental and subordinate to the performance of his duty as a surgeon.[8]

481. The modern rule.—Since the passage of the medical act in England, physicians, as well as surgeons, are entitled to recover compensation for their services.[9] And the common-law rule has never been

32 L. J. Exch. N. S. 182, 9 Jur. N. S. 525, 8 L. T. N. S. 321, 11 Week. Rep. 626; *Veitch* v. *Russell*, 3 Q. B. 928, 3 Gale & D. 198, Car. & M. 362, 12 L. J. Q. B. N. S. 13, 7 Jur. 60.

A physician at common law might properly contract for a fixed sum as a reasonable compensation for his services at the termination of his attendance. *Veitch* v. *Russell*, Car. & M. 362, 3 Q. B. 928, 3 Gale & D. 198, 12 L. J. Q. B. N. S. 13, 7 Jur. 60.

But a contract to pay a physician for services would not be inferred at common law from a request for his attendance. *Ibid.*

On the contrary, the fact that a physician was not paid fees at the time he was consulted tends to show, on the question of his right to compensation, that he was not acting as a physician. *Little* v. *Oldaker*, Car. & M. 370.

[5]*Mooney* v. *Lloyd*, 5 Serg. & R. 412.

[6]*Graham* v. *Gautier*, 21 Tex. 111; *Handey* v. *Henson*, 4 Car. & P. 110.

There is no rule of law which prevents an apothecary from making distinct charges for attendance and for medicines; the liability of the patient therefor being a question for the jury, depending upon their reasonableness under the circumstances of the case. *Morgan* v. *Hallen*, 8 Ad. & El. 489, 3 Nev. & P. 489, 7 L. J. Q. B. N. S. 212, 2 Jur. 591, 1 W. W. & H. 370.

[7]*Battersby* v. *Lawrence*, Car. & M. 277; *Little* v. *Oldaker*, Car. & M. 370; *Veitch* v. *Russell*, 3 Q. B. 928, Car. & M. 362, 3 Gale & D. 198, 12 L. J. Q. B. N. S. 13, 7 Jur. 60.

So, the fact that a business was carried on by two partners, one of whom was registered as a surgeon and apothecary, and the other as a surgeon only, furnishes no defense, under a statute prohibiting recovery for services by unregistered medical practitioners, to a joint claim for attendance and medicines supplied in both capacities. *Turner* v. *Reynall*, 14 C. B. N. S. 328, 32 L. J. C. P. N. S. 164, 9 Jur. N. S. 1077, 8 L. T. N. S. 281, 11 Week. Rep. 700.

[8]*Simpson* v. *Ralfe*, 4 Tyrw. 325; *Allison* v. *Haydon*, 3 Car. & P. 246, 4 Bing. 619, 1 Moore & P. 588, 6 L. J. C. P. 144, 29 Revised Rep. 653.

But admission as a member of the Royal College of Surgeons does not entitle a person to charge for medicines administered by him while he attended a patient suffering from fever. *Allison* v. *Haydon*, 3 Car. & P. 246, 4 Bing. 619, 1 Moore & P. 588, 6 L. J. C. P. 144, 29 Revised Rep. 653.

And a statutory provision subsequently passed, enabling a person registered according to his qualification, to practise medicine or surgery, and to recover reasonable charges for his professional services, does not repeal an act prohibiting apothecaries from recovering charges unless they have certificates from the society of apothecaries; and a medical practitioner registered under the subsequent act as a member of the college of surgeons only cannot recover for attendance and medicines supplied in a surgical case. *Leman* v. *Fletcher*, L. R. 8 Q. B. 319, 42 L. J. Q. B. N. S. 214, 28 L. T. N. S. 499, 21 Week. Rep. 738.

[9]*Starrett* v. *Miley*, 79 Ill. App. 659; *Gibbon* v. *Budd*, 2 Hurlst. & C. 92, 32 L. J. Exch. N. S. 182, 9 Jur. N. S. 525, 8 L. T. N. S. 321, 11 Week. Rep. 626.

Under the English medical act, 21 &

deemed applicable in the United States, the universal rule here being, and having always been, that the law will imply a promise to pay a reasonable compensation for a physician's services, upon which a recovery may be had.[10] And recovery of compensation under a contract therefor is not prevented by the fact that the services were rendered to another than the one sought to be held;[11] or that the physician is the executor of his deceased patient;[12] or by want of success, due care and skill having been used.[13] The contract of a physician is entire, however, and performance must be shown to warrant a recovery for services;[14] and where medical services were intended and accepted as a gift, or gratuity, they cannot be subsequently regarded as creating a legal obligation to pay.[15] And it is competent to show that medical services were rendered gratuitously;[16] or that they were

22 Vict. chap. 90, the object of which was to permit physicians to recover fees for services, but to enable the fellows of the college of physicians, if they desired that the dignity of their body should be preserved by practising for an honorarium, to effect this by a by-law, the presumption is that a physician who attends a patient does so for a fee, the right to which can be enforced by action. *Gibbon* v. *Budd*, 2 Hurlst. & C. 92, 32 L. J. Exch. N. S. 182, 9 Jur. N. S. 525, 8 L. T. N. S. 321, 11 Week. Rep. 626.

[10]*Starrett* v. *Miley*, 79 Ill. App. 658; *Judah* v. *M'Namee*, 3 Blackf. 269; *Peck* v. *Martin*, 17 Ind. 115; *McPherson* v. *Cheadell*, 24 Wend. 15; *Re Scott*, 1 Redf. 234; *Graham* v. *Gautier*, 21 Tex. 111.

And an agreement by a physician, in settlement of a controversy, in consideration of a payment of a sum of money, to render to the other party such general advice and prescriptions as would be needed by him from time to time, is too uncertain and indefinite to constitute a defense to an action subsequently brought by the physician for medical services alleged to have been rendered in consideration of such payment. *Mays* v. *Patterson*, 20 Pa. Super. Ct. 92.

[11]See *White* v. *Mastin*, 38 Ala. 147. And see also *ante*, §§ 467, 468, 469, 470, 471, 472.

And a physician, seeking to recover for medical services rendered to a third person, may prove that, although he did not begin, he continued, his services at the instance and request of the defendant. *White* v. *Mastin*, 38 Ala. 147.

But the fact that a person, sought to be held liable to a physician for services rendered by him to a third person in an infirmary, had paid his account contracted with the infirmary, is irrelevant and inadmissible in an action for services rendered. *Ibid.*

[12]*Re Scott*, 1 Redf. 234.

[13]*Yunker* v. *Marshall*, 65 Ill. App. 667; *Ely* v. *Wilbur*, 49 N. J. L. 685, 60 Am. Rep. 668, 10 Atl. 358, 441; *Ladd* v. *Witte*, 116 Wis. 35, 92 N. W. 365.

The mistake which will deprive a physician of a right to compensation must have been the result of want of care or skill. *Ely* v. *Wilbur*, 49 N. J. L. 685, 60 Am. Rep. 668, 10 Atl. 358, 441.

[14]*Bellinger* v. *Craigue*, 31 Barb. 534.

[15]*Prince* v. *McRae*, 84 N. C. 674; *Lippman* v. *Tittmann*, 31 Mo. App. 69.

A surgeon who presents his bill to a patient, leaving the charge for attendance blank, must be regarded as leaving the amount to the generosity of the patient; and where the patient pays him a certain sum, he can recover no more. *Tuson* v. *Batting*, 3 Esp. 192.

And where, in a proceeding for the recovery of compensation for medical services rendered by a son to his parent, it appears that part of such services were intended to be gratuitous, it cannot be presumed that there was any design to charge for the remainder; and no promise to pay can be implied. *Ross* v. *Ross*, 6 Hun, 182.

But the fact that a physician made no charge for a part of his visits and services to a patient has no effect on the right of a physician to recover for the balance of such services. *Buchanan* v. *Sterling*, 63 Ga. 227.

[16]*Re Scott*, 1 Redf. 234; *Huston* v. *Barstow*, 19 Pa. 169.

But the fact that a physician attended a patient and rendered no bill for his

rendered on a "no cure no pay" contract, and that a cure had not been effected.[17] It is a question for the jury in an action for compensation, whether or not such services were intended to be gratuitous;[18] and, in order to defeat the claim therefor, affirmative evidence must be produced.[19]

A physician would not be entitled to recover for medical services rendered to another physician, it seems, where there was a general understanding among physicians that, instead of receiving money for such services, the attending physician accepted in full payment therefor the benefits and advantages of professional comity, which assured to him valuable professional skill under similar conditions, and the continued good opinion of members of the learned profession deemed essential to success, and confidential scientific counsel in matters pertaining to health and reputation.[20] And, in such case, evidence of universal custom among physicians not to charge for their attendance upon fellow physicians is admissible.[21] The code of ethics of the profession, however, would not be evidence, without accompanying proof that both parties acknowledged themselves to be bound by it at the time the services were rendered.[22] And a custom among physicians not to charge each other for professional services, to be a defense against an action for a physician's services, must have been so universal as to justify the conclusion that it became by implication a part of the contract for services.[23]

482. Amount under express contract.—When there is an express contract between the parties relating directly to the amount of compensation of a physician for medical services, that is, of course, controlling.[24] When made with relation to particular circumstances or

services, but expected and hoped to be compensated by receiving a legacy from her, does not preclude him from suing her executor for his services, where no legacy was left him. *Baxter* v. *Gray*, 4 Scott, N. R. 374, 3 Mann. & G. 771, 11 L. J. C. P. N. S. 63.

[17] *Pickler* v. *Caldwell*, 86 Minn. 133, 90 N. W. 307; *McDonald* v. *Harris*, 131 Ala. 359, 31 So. 548.

[18] *Prince* v. *McRae*, 84 N. C. 674.

[19] *Re Scott*, 1 Redf. 234.

But a physician in the employment of another as a dermatologist on a weekly salary, who volunteers and renders medical services to his employer during the employment, will be deemed to have rendered them as a part of his employment, in the absence of evidence of an express agreement to pay for them. *Perry* v. *Woodbury*, 44 N. Y. S. R. 287, 17 N. Y. Supp. 530.

And a physician summoned from a distant place to attend an aunt, not in a professional capacity, but as adviser in business matters, who, on his arrival, renders valuable professional services which were accepted by the aunt, is entitled to compensation therefor; but not having been summoned professionally in the first instance, he cannot include a claim for loss of home practice. *Dickie's Succession*, 41 La. Ann. 1010, 6 So. 798.

[20] *Bremerman* v. *Hayes*, 9 Pa. Super. Ct. 8.

[21] *Ibid.*

[22] *Ibid.*

[23] *Madden* v. *Blain*, 66 Ga. 49.

[24] See *Burgoon* v. *Johnson*, 194 Pa. 61,

conditions existing and expected to continue, however, it is subject to change or to the engrafting thereon of alterations and new conditions if there is a total or radical change in such circumstances and conditions;[25] and though there is an express contract, recovery for other and different services not included within its provisions is not thereby prevented.[26] It is a question for the jury whether or not changes in circumstances or conditions have abrogated or altered an express contract for compensation for medical services previously existing.[27] It is competent for a physician to enter into a contract for the performance of medical services, and for the submission of his claims for compensation to the approval of certain persons named; and, in such case his right to recover depends upon such approval, where it was not fraudulently withheld.[28] But a contract by which the compensation of a physician was made to depend upon the amount obtained by the patient from the one causing his injury, contemplating a disclosure of the extent of the injury for the purpose of enhancing such amount, is void as against public policy.[29]

483. Amount under implied contract generally.—A physician rendering medical services to another, without a specific agreement as to compensation, must recover, if at all, upon a *quantum meruit*,[30] the value to be proved being the ordinary and reasonable price for services of that nature.[31] And this he is entitled to, where no want of actual skill

45 Atl. 65; *Brown* v. *Murrell* (Ark.) 16 S. W. 478; *MacEvitt* v. *Maass*, 64 App. Div. 382, 72 N. Y. Supp. 158; *Doyle* v. *Edwards*, 15 S. D. 648, 91 N. W. 322.

A contract to pay a physician from $200 to $400 for the performance of a surgical operation is binding and valid for $200, and for the value of his services up to $400, upon proof of such value. *Doyle* v. *Edwards*, 15 S. D. 648, 91 N. W. 322.

And where a physician having a trouble, contracted with a specialist for his cure, agreeing that he would give a certificate of skill and proficiency of the specialist as such in the treatment of that trouble, or $5,000 in cash, the $5,000 will not be regarded as a penalty which cannot be recovered in full, but as merely an alternative mode of payment agreed upon by the parties, and is recoverable in case of failure to give the certificate. *Burgoon* v. *Johnson*, 194 Pa. 61, 45 Atl. 65.

[25] *Brown* v. *Murrell* (Ark.) 16 S. W. 478; *MacEvitt* v. *Maass*, 64 App. Div. 382, 72 N. Y. Supp. 158.

[26] *Union P. R. Co.* v. *Graddy*, 25 Neb. 849, 41 N. W. 809.

[27] *MacEvitt* v. *Maass*, 64 App. Div. 382, 72 N. Y. Supp. 158.

[28] *Union P. R. Co.* v. *Anderson*, 11 Colo. 293, 18 Pac. 24.

[29] *Thomas* v. *Caulkett*, 57 Mich. 392, 58 Am. Rep. 369, 24 N. W. 154.

[30] *Forbes* v. *Kennedy*, 76 Hun, 39, 27 N. Y. Supp. 596; *Prince* v. *McRae*, 84 N. C. 674.

[31] *Styles* v. *Tyler*, 64 Conn. 432, 30 Atl. 165; *Prince* v. *McRae*, 84 N. C. 674; *McKnight* v. *Detroit & M. R. Co.* (Mich.) 10 Det. L. N. 777, 97 N. W. 772.

Where witnesses differ as to charges made by physicians for services rendered a decedent in his last sickness, in the settlement of his estate the correct rule is to allow the lowest estimate. *Duclos's Succession*, 11 La. Ann. 406; *Collins* v. *Graves*, 13 La. Ann. 95.

And a verdict of a large amount on a claim for medical services rendered upon the implied promise of the patient to bear all the expenses, and pay what the services were fairly and reasonably worth, will be set aside though no evidence was given to controvert the amount, where there was no evidence that the services were worth the amount

is specifically shown though he fell into mistake in his treatment,[32] and though he did not succeed in accomplishing that for which he was employed.[33] A physician in such case, however, can only recover the fair value of the services actually rendered;[34] and the value of a physician's services cannot be measured as matter of law by his actual average daily receipts; the jury in such cases must take all of the various elements into consideration, and draw its own conclusion as to the amount by comparison.[35] And the reasonableness of the charge of a physician for his services cannot be determined by comparison with other charges made by him in similar cases.[36] Physicians keeping accounts, which by custom become due at the end of the year, are entitled to interest on their accounts from the end of the year, within the equity of a statutory provision declaring that the accounts of merchants, tradesmen, and mechanics, which by custom become due at the end of the year, should bear interest, though they are not within the very terms of the statute.[37]

484. Effect of professional standing, nature of case, and financial ability.—The measure of compensation of physicians and surgeons is controlled to some extent by their standing and ability in the profession, and the seriousness of the case, and the services rendered, and their general responsibility and success.[38] In such cases, where the skill and learning of the practitioner, as well as the variety in character and circumstances of the subject to which he devotes his services, preclude the establishment of any fixed rate of compensation, the rule that the usual price at the time and place of performance controls in the absence of special contract does not apply.[39] The rule has

of the verdict above the expenses, and no proof of any usage or custom that the plaintiff should pay the physician's expenses. *Forbes* v. *Kennedy*, 76 Hun, 39, 27 N. Y. Supp. 596.

[32]*Ely* v. *Wilbur*, 49 N. J. L. 685, 60 Am. Rep. 668, 10 Atl. 358, 441. And see *ante*, § 466.

[33]*Tiedeman* v. *Loewengrund*, 2 W. N. C. 272; *Wurdemann* v. *Barnes*, 92 Wis. 206, 66 N. W. 111. And see *ante*, § 466.

[34]*Chicago & N. W. R. Co.* v. *Friend*, 86 Ill. App. 157. And see *McNamara* v. *McNamara*, 108 Wis. 613, 84 N. W. 901.

A brother of a decedent can recover no more from the decedent's estate for services as a physician than the ordinary value of such services which could be recovered by another physician. *Moffett's Estate*, 11 Phila. 79.

[35]*Thomas* v. *Caulkett*, 57 Mich. 392, 58 Am. Rep. 369, 24 N. W. 154.

[36]*Collins* v. *Fowler*, 4 Ala. 647.

But an account with a physician for similar services previously settled is competent and admissible in evidence in an action by the physician for services subsequently rendered, as tending to establish an implied contract or understanding in relation to the amount which should be charged for such services. *Sidener* v. *Fetter*, 19 Ind. 310.

[37]*Woodfield* v. *Colzey*, 47 Ga. 121.

[38]*Lange* v. *Kearney*, 21 N. Y. S. R. 262, 4 N. Y. Supp. 14; *MacEvitt* v. *Maass*, 64 App. Div. 382, 72 N. Y. Supp. 158; *Heintz* v. *Cooper* (Cal.) 47 Pac. 360.

The fitness of the place in which a surgical operation was performed is pertinent and admissible in an action for services, on the question of the reasonableness of the surgeon's charge. *Sayles* v. *Fitzgerald*, 72 Conn. 391, 44 Atl. 733.

[39]*Heintz* v. *Cooper* (Cal.) 47 Pac. 360.

been laid down, however, that the charges of a physician for services cannot be determined solely upon the basis of skill, and that the amount of the patient's estate, and his ability to pay, also enter into the conclusion and influence it.[40] But the contrary rule, that the circumstances of the party subject to be charged do not constitute an element in fixing the value of the services, has also been asserted.[41] Where a patient requires an unusual amount of attention, that fact may be considered in fixing the amount of the compensation.[42] And a physician attending a patient is the proper and sole judge of the necessary frequency of his visits to his patient so long as the patient is in his charge; and he is not required to prove the necessity of making the visits he did, in order to recover his compensation,[43] it being presumed that all professional visits were necessary and were properly made.[44]

485. Effect of failure to obtain license.—The statutes of many of the states regulating the practice of medicine, surgery, etc., prohibit practice for a fee or reward by unlicensed persons, or provide expressly that an unlicensed person shall not recover compensation for services rendered.[45] Under such statutes a contract by an unlicensed

[40] *Czarnowski* v. *Zeyer*, 35 La. Ann. 796; *Haley's Succession*, 50 La. Ann. 840, 24 So. 285. And see *Lange* v. *Kearney*, 21 N. Y. S. R. 262, 4 N. Y. Supp. 14.

But the financial condition of a person is irrelevant and incompetent on the question whether or not he had bargained with a physician on the "no cure no pay" basis. *Hollywood* v. *Reed*, 55 Mich. 308, 21 N. W. 313.

[41] *Robinson* v. *Campbell*, 47 Iowa, 625.

It has been held in a late case that testimony as to the value of a patient's estate, upon an inquiry as to the value of professional services rendered to him, is not admissible, in the absence of a recognized usage obtaining in the premises to graduate professional charges with reference to the financial condition of the person for whom such services were rendered, which had been so long established and so universally acted upon as to have ripened into a custom of such a character that it might be supposed the services were rendered in contemplation of it. *Morrissett* v. *Wood*, 123 Ala. 384, 82 Am. St. Rep. 127, 26 So. 307.

[42] *Short's Succession*, 45 La. Ann. 1485, 14 So. 184.

[43] *Ebner* v. *Mackey*, 186 Ill. 297, 51 L. R. A. 298, 78 Am. St. Rep. 280, 57 N. E. 834; *Todd* v. *Myres*, 40 Cal. 355. And see *Short's Succession*, 45 La. Ann. 1485, 14 So. 184.

And refusal to permit defendant's counsel to cross-examine the plaintiff, in an action for medical services, as to the amount charged for particular visits, and what they were worth, is not prejudicial error, where there was no dispute as to the number of visits or items. *Wurdemann* v. *Barnes*, 92 Wis. 206, 66 N. W. 111.

[44] *Todd* v. *Myres*, 40 Cal. 355.

But an extra charge for the visits of a physician based solely upon the fact that more than one physician had been called in and should have regularly attended the patient, on the theory that each call was a consultation, is illegal. *Haley's Succession*, 50 La. Ann. 840, 24 So. 285.

[45] See *Puckett* v. *Alexander* 102 N. C. 98, 3 L. R. A. 43, 8 S. E. 767; *Orr* v. *Meek*, 111 Ind. 40, 11 N. E. 787; *Eastman* v. *State*, 109 Ind. 278, 58 Am. Rep. 400, 10 N. E. 97; *Czarnowski* v. *Zeyer*, 35 La. Ann. 796; *Berry* v. *Scott*, 2 Harr. & G. 92; *Spaulding* v. *Alford*, 1 Pick. 33; *Davidson* v. *Bohlman*, 37 Mo. App. 576; *Maxwell* v. *Swigart*, 48 Neb. 789, 67 N. W. 789; *Haworth* v. *Montgomery*,

physician to render medical services for a fee is void in its inception, and does not constitute a sufficient consideration for an express promise to pay for the services.[46] Such statutes embrace all cases in which the attempt to recover is subsequent to the time the act went into effect, without reference to the time the claim accrued,[47] requiring qualification before the services were rendered,[48] and include actions brought after the repeal of the law for recovery for medical services rendered while it remained in force,[49] and include, also,

91 Tenn. 16, 18 S. W. 399; *Rider* v. *Ashland County*, 87 Wis. 160, 58 N. W. 236.

A statutory provision forbidding persons not graduates of a reputable school of medicine from practising medicine, the only penalty prescribed being that the person violating it shall not be entitled to compensation for his services; and another provision prohibiting anyone except graduates of schools of medicine from practising medicine, imposing a fine, penalty, and imprisonment,— leaves a person not having graduated from a medical college held to be reputable at liberty to practise his profession, but he is not entitled to compensation therefor. *State ex rel. Baldwin* v. *Prendergast*, 8 Ohio C. C. 401.

[46]*Puckett* v. *Alexander*, 102 N. C. 98, 3 L. R. A. 43, 8 S. E. 767; *Mays* v. *Williams*, 27 Ala. 267.

But a physician suing for medicines and medical services is not bound to produce his license, under a statute making contracts or securities given for medical services void where the physician is unlicensed, unless he has received notice by plea or otherwise that he will be required to produce it. *Crane* v. *McLaw*, 12 Rich. L. 129.

[47]*Berry* v. *Scott*, 2 Harr. & G. 92; *Gardner* v. *Tatum*, 81 Cal. 370, 22 Pac. 880.

But though the statute provides that no action shall lie in favor of any person for services rendered as a physician unless he shall have procured a license to practise medicine in the county where the services were rendered, yet it is not necessary in filing a claim against an estate for such services to allege that he was a regularly licensed physician at the time the services were rendered. *Cooper* v. *Griffin*, 13 Ind. App. 212, 40 N. E. 710.

[48]*Thompson* v. *Hazen*, 25 Me. 104; *Leman* v. *Houseley*, L. R. 10 Q. B. 66, 44 L. J. C. B. N. S. 22, 31 L. T. N. S. 833, 23 Week. Rep. 235.

And a certificate issued to a physician during the period of continuance of medical services rendered by him will not relate back to the time he made his application so as to warrant recovery for services rendered previous to the time he obtained it. *Gardner* v. *Tatum*, 81 Cal. 370, 22 Pac. 880.

But all that a medical practitioner seeking to recover for services rendered need do, under a statute prohibiting recovery for services by a practitioner unless he can prove upon the trial that he is registered, is to establish that he was registered at the time of the trial; he need not show that he was registered at the time of the rendition of the services. *Turner* v. *Reynall*, 14 C. B. N. S. 328, 32 L. J. C. P. N. S. 164, 9 Jur. N. S. 1077, 8 L. T. N. S. 281, 11 Week. Rep. 700.

And a statutory provision prohibiting recovery by an unregistered medical practitioner for services rendered has no retrospective effect so as to prevent a person who was not registered from maintaining an action for such services rendered before the act went into operation. *Wright* v. *Greenroyd*, 1 Best & S. 758, 31 L. J. Q. B. N. S. 4, 8 Jur. N. S. 98, 5 L. T. N. S. 347.

[49]*Nichols* v. *Poulson*, 6 Ohio, 305; *Mays* v. *Williams*, 27 Ala. 267; *Quarles* v. *Evans*, 7 La. Ann. 543; *Bailey* v. *Mogg*, 4 Denio, 60; *Puckett* v. *Alexander*, 102 N. C. 98, 3 L. R. A. 43, 8 S. E. 767; *Warren* v. *Saxby*, 12 Vt. 146.

But a statute providing that no physician shall be entitled to recover any debt or fee accruing for professional services rendered after a designated date unless he had been licensed, and that all former acts directed thereto are repealed, takes effect so far as the repealing provision is concerned at the time designated for the taking effect of the rest of the act, and not at the time of its enactment, so that acts of practice in the interval would be unaffected either by that act or the laws previously in

actions for compensation for medicines and bottles used incidentally in performing the services.[50] And the effect is not changed by the fact that the person employing the physician knew that he was unlicensed.[51] Even in the absence of an express prohibition against practising for a fee or reward, where the statute requires every person practising medicine to take particular designated steps as a prerequisite to his rights, enforcing the requirement by penal sanction, one who fails to comply with such provision can recover no fees for professional services.[52] And he cannot recover upon a contract for such services.[53]

existence. *Spaulding* v. *Alford*, 1 Pick. 33.

And in *Hewitt* v. *Wilcox*, 1 Met. 154, it was held that a statutory provision that a physician should not be entitled to the benefit of the law for the recovery of any debt or fee accruing for his professional services unless he was duly qualified as required by law affects the remedy, and not the right, and leaves in force the principle of the common law that, when services are performed on request, and no agreement is made in respect to them, the law raises an implied promise to pay their reasonable value; so that, if the law is repealed, a physician, though unlicensed, may recover for professional services rendered by him before the repeal.

[50]*Smith* v. *Tracy*, 2 Hall, 465; *Alcott* v. *Barber*, 1 Wend. 526; *Steed* v. *Henley*, 1 Car. & P. 574.

And the fact that medicines supplied by an unlicensed physician were patented gives him no additional right to recover for them, the only effect of the patent being to preclude others from selling or using them. *Smith* v. *Tracy*, 2 Hall, 465.

But though the statute provides that obligations given for medical services rendered by an unlicensed practitioner shall be void, one who practises as a physician may also be a druggist or an apothecary; and where drugs sold constitute a part of the consideration for a note given to the physician, the true question for the jury in an action thereon is, Were the drugs and medicines, embraced in the account, prescribed, administered, or furnished by the plaintiff acting in the capacity of a physician, or did he sell them in the capacity of a druggist or apothecary? *Holland* v. *Adams*, 21 Ala. 680.

[51]*Smith* v. *Tracy*, 2 Hall, 465.

But the contrary rule seems to obtain where the statute merely prohibits unlicensed practice, and does not expressly prohibit the recovery of compensation by unlicensed practitioners. *Bronson* v. *Hoffman*, 7 Hun, 674.

[52]*Chicago* v. *Honey*, 10 Ill. App. 535; *Patrick* v. *Perryman*, 52 Ill. App. 514; *Harrison* v. *Jones*, 80 Ala. 412; *Gardner* v. *Tatum*, 81 Cal. 370, 22 Pac. 880; *Roberts* v. *Levy* (Cal.) 31 Pac. 570; *Byrne* v. *Panesi*, 77 Ill. App. 164; *Underwood* v. *Scott*, 43 Kan. 714, 23 Pac. 942; *Dickerson* v. *Gordy*, 5 Rob. (La.) 489; *Bohn* v. *Lowery*, 77 Miss. 424, 27 So. 604; *Timmerman* v. *Morrison*, 14 Johns. 369; *Bailey* v. *Mogg*, 4 Denio, 60; *Fox* v. *Dixon*, 34 N. Y. S. R. 710, 12 N. Y. Supp. 267; *Accetta* v. *Zupa*, 54 App. Div. 33, 66 N. Y. Supp. 303; *Ottaway* v. *Lowden*, 55 App. Div. 410, 66 N. Y. Supp. 952; *Alcott* v. *Barber*, 1 Wend. 526; *Dowdell* v. *McBride*, 18 Tex. Civ. App. 645, 45 S. W. 397; *Kenedy* v. *Schultz*, 6 Tex. Civ. App. 461, 25 S. W. 667; *San Antonio Street R. Co.* v. *Muth*, 7 Tex. Civ. App. 443, 27 S. W. 752; *Wilson* v. *Vick* (Tex. Civ. App.) 51 S. W. 45; *Wooley* v. *Bell* (Tex. Civ. App.) 76 S. W. 797.

In *Smythe* v. *Hanson*, 61 Mo. App. 285, however, where the statute formerly provided that a person practising medicine without a license should not recover any compensation for his services so rendered, but was subsequently amended by omitting this provision, leaving such practice a misdemeanor, it was held, apparently in order to give effect to such amendment, that a physician rendering services as such, under a contract with the person benefited, may recover their value from him, though in rendering the services he was guilty of a misdemeanor because he rendered them without a proper certificate or license. And the same ruling was made in *Prietto* v. *Lewis*, 11 Mo. App. 600.

[53]*Mayfield* v. *Nale*, 26 Ind. App. 240, 59 N. E. 415.

In *Gremare* v. *Le Clerc Bois Valon*,

Nor can one recover for services when he practises without being duly qualified, in opposition to a direct prohibition against practising without all the required qualifications;[54] though a substantial compliance, one from which it can be seen that the prescribed qualifications exist, seems to be all that is required.[55] Neither can a licensed practitioner give a roving authority to an unlicensed one to practise in his name without consulting him, and then recover compensation for services rendered by the unqualified person.[56] And where one person has bound himself to pay for medical services rendered to another, the statutory prohibition affords a defense to the surety, as well as to the principal debtor.[57] And it has been held that no recovery can be had by an unqualified practitioner though the services were rendered in a foreign state or jurisdiction.[58] Where one chooses to be treated by the methods of Christian Science, osteopathy, or other similar system, however, and agrees to pay for such treatment, there is nothing unlawful in the contract; and the practitioner is entitled to recover.[59]

486. Effect of failure to record or register.—Where the statute re-

2 Campb. 144, however, it was held that a person practising as a surgeon may maintain an action for services rendered notwithstanding a statutory provision prohibiting practising as a surgeon without being licensed, under a penalty where the statute contains no prohibition against recovery of compensation.

And *Citizens' State Bank* v. *Nore* (Neb.) 60 L. R. A. 737, 93 N. W. 160, holds that a note given for medical services rendered by an unlicensed practitioner may be recovered upon by a bona fide purchaser notwithstanding the provisions of a statute prohibiting the practice of medicine without a license.

[54] *Haworth* v. *Montgomery,* 91 Tenn. 16, 18 S. W. 399; *Bohn* v. *Lowery,* 77 Miss. 424, 27 So. 604.

[55] See *Carleton* v. *Sloan* (Tex. Civ. App.) 55 S. W. 753; *Rider* v. *Ashland County,* 87 Wis. 160, 58 N. W. 236; *Chadwick* v. *Bunning,* 2 Car. & P. 106, Ryan & M. 306.

[56] *Howarth* v. *Brearley,* L. R. 19 Q. B. Div. 303, 56 L. J. Q. B. N. S. 543, 56 L. T. N. S. 743, 36 Week. Rep. 302, 51 J. P. 440.

But a statute prohibiting the recovery of fees by unlicensed physicians does not prevent a recovery of fees by a licensed physician for services of his students in attendance upon his patients. *People ex rel. Waring* v. *Monroe Common Pleas,* 4 Wend. 200.

And if medicines applied by an apothecary were given under the direction of a physician, however improperly, the action should be supported because the skill of the apothecary would not in that case be an element of the action. *Kannen* v. *M'Mullen,* Peake, N. P. Cas. 59.

[57] *De la Rosa* v. *Prieto,* 16 C. B. N. S. 578, 33 L. J. C. P. N. S. 262, 10 Jur. N. S. 851, 10 L. T. N. S. 757, 12 Week. Rep. 1029.

And a statutory prohibition against recovery by an unregistered medical practitioner for advice, attendance, or medicines, includes a case of a suit by an unregistered practitioner against a registered one for medicines supplied to, or attendance upon, the patients of the latter at his request. *Ibid.*

[58] *Rugg* v. *Lewis,* Rapp. Jud. Quebec, 17 C. S. 206; *De la Rosa* v. *Prieto,* 16 C. B. N. S. 578, 33 L. J. C. P. N. S. 262, 10 Jur. N. S. 851, 10 L. T. N. S. 757, 12 Week. Rep. 1029. *Contra, Downs* v. *Minchew,* 30 Ala. 86.

And a statute denying the benefit of the law for the recovery of fees by medical practitioners not duly licensed extends to physicians residing out of the state, with reference to professional services rendered within it. *Spaulding* v. *Alford,* 1 Pick. 33.

[59] *Wheeler* v. *Sawyer* (Me.) 15 Atl. 67; *Smith* v. *Lane,* 24 Hun, 632.

quires the recording or registration of a license or diploma, making it a penal offense to practise without a license so recorded or registered, no recovery can be had for medical services rendered, in the absence of such recording or registration.[60] And the rule is the same where the statute provides that no person shall recover for such services unless he shall have complied with the provisions of the act which requires registration.[61] And a statute making valid a previous imperfect registration is not retroactive in effect so as to give a right of recovery for services rendered previous to registration.[62] A physician is not prevented from recovering for his fees, however, by the fact that he had not recorded or registered his license as required by law, where the existing statute did not attach any legal disability to the practitioner for failure to record.[63] And where the statute provides that the issuance of the certificate of a board or body shall be conclusive as to the right of the holder to practise, a holder of such a certificate may recover though he had failed to record it in accordance with an express statutory requirement.[64] And a physician's claim for services cannot be defeated for failure to record, under a statute requiring record in the county in which he resides, in the absence of proof as to his residence.[65]

487. Failure to qualify through accident or inability.—Failure on the part of a physician to register will not prevent his recovery for medical services rendered, where it was due to the fact that the clerk did not have a proper book in which he could register at the time of the rendition of the services, and a registry was made as soon as the clerk could be required to procure the book.[66] And the rule has been laid down that the failure of a physician to procure a license will not prevent him from maintaining an action for his services, where the statute contained no prohibition to practise, and there was no existing medical board by which a license could be granted.[67] It has been held, however, that the fact that a physician was disabled by sickness from

[60] *Kenedy* v. *Schultz*, 6 Tex. Civ. App. 461, 25 S. W. 667; *Wickes-Nease* v. *Watts*, 30 Tex. Civ. App. 515, 70 S. W. 1001; *Wilson* v. *Vick* (Tex. Civ. App.) 51 S. W. 45; *Accetta* v. *Zupa*, 54 App. Div. 33, 66 N. Y. Supp. 303; *Fox* v. *Dixon*, 34 N. Y. S. R. 710, 12 N. Y. Supp. 267.

[61] *Maxwell* v. *Swigart*, 48 Neb. 789, 67 N. W. 789. And see *Ottaway* v. *Lowden*, 55 App. Div. 410, 66 N. Y. Supp. 952.

[62] *Ottaway* v. *Lowden*, 55 App. Div. 410, 66 N. Y. Supp. 952.

[63] *Towle* v. *Marrett*, 3 Me. 22, 14 Am. Dec. 206; *Finch* v. *Gridley*, 25 Wend. 469; *Prietto* v. *Lewis*, 11 Mo. App. 600; *Wilson* v. *Vick*, 93 Tex. 88, 53 S. W. 576.

[64] *Riley* v. *Collins*, 16 Colo. App. 280, 64 Pac. 1052.

[65] *Ibid.*

[66] *Parish* v. *Foss*, 75 Ga. 439.

[67] *Woodside* v. *Baldwin*, 4 Cranch, C. C. 174, Fed. Cas. No. 17,995.

procuring a license at the time of a meeting of the board for the issuance of licenses, does not furnish an excuse for his failure to procure one which will warrant his recovery of fees for services rendered without a license.[68] But in any event a physician called upon in a pressing emergency, or in a case in which human life is immediately at stake, who has no time to procure a license, would, nevertheless, be entitled to compensation for services rendered while the emergency lasted notwithstanding a statutory provision prohibiting recovery of compensation by an unlicensed physician.[69]

488. Effect of malpractice.—Facts which would sustain an action against a physician for malpractice either in his diagnosis, or in administering medicine, or in a surgical operation, are held in some of the states to constitute a complete defense to an action by him for professional services.[70] This rule is based upon the theory that tort cannot be set off against contract;[71] and that the act is not a counterclaim, since in such case the plaintiff cannot be said to have a claim, it not being possible for the two claims to coexist.[72] The contrary rule, however, that a physician or surgeon is not deprived of all compensation for his services merely because he was guilty of negligence causing injury, and is not compelled to suffer any penalty beyond the amount of the actual damages sustained, seems to be the prevailing

[68] *Bohn* v. *Lowery*, 77 Miss. 424, 27 So. 604.

[69] *Adams County* v. *Cole*, 9 Ind. App. 474, 36 N. E. 912.

But he would be entitled to no compensation for services afterwards rendered for which there would be ample time to procure a license as required by law; in such case the right to recover could not be extended beyond the necessities of the actual emergency. *Ibid.*

[70] *Abbott* v. *Mayfield*, 8 Kan. App. 387, 56 Pac. 327; *McKleroy* v. *Sewell*, 73 Ga. 657; *Piper* v. *Menifee*, 12 B. Mon. 465, 54 Am. Dec. 547; *Patten* v. *Wiggin*, 51 Me. 594, 81 Am. Dec. 593; *Logan* v. *Field*, 75 Mo. App. 594; *Bellinger* v. *Craigue*, 31 Barb. 534; *Kannen* v. *M'Mullen*, Peake, N. P. Cas. 59. And see *Styles* v. *Tyler*, 64 Conn. 432, 30 Atl. 165; *Mays* v. *Hogan*, 4 Tex. 26. And see *Brinkman* v. *Kursheedt*, 84 N. Y. Supp. 575.

And a physician who treated a patient for a long time, and afterwards found that it was impossible to cure him except by a surgical operation, who, at the inception of the treatment, did not know that fact, but during the progress of same could have discovered it by the exercise of due care and skill, or, who discovered and concealed it, and continued the treatment,—is not entitled to recover any compensation therefor, after the discovery that it would be ineffectual. *Logan* v. *Field*, 75 Mo. App. 594.

But the fact that a patient grew worse under a physician's treatment, and that he grew better after the physician had been discharged, is not sufficient to show that the physician was guilty of negligence or unskilfulness in treating him. *Wurdemann* v. *Barnes*, 92 Wis. 206, 66 N. W. 111.

And that a physician had been intoxicated in the past is not a good ground of defense in an action for services rendered, if, after such intoxication, the patient kept him for his family physician for years. *McKleroy* v. *Sewell*, 73 Ga. 657.

[71] *Ibid.*

[72] *Bellinger* v. *Craigue*, 31 Barb. 534.

So, a claim for damages for malpractice is not new matter which admits the plaintiff's demand. *Ibid.*

one.[73] And under this rule malpractice may be set up, in an action for compensation, as a counterclaim, going to reduce or defeat the plaintiff's claim, and warrants an independent recovery by the defendant.[74] And it would seem that the want of care and skill may be considered for the purpose of reducing the physician's claim.[75] A physician cannot be deprived of the right to recover compensation for his services by the negligence of others for whose acts he is not responsible.[76]

489. Preference of claim.—The expenses of a person's last illness, generally including compensation for the attending physician, are usually made a preferred claim by statute over ordinary demands upon the estate of the decedent.[77] Such claims are not limited as to time, and may be given a preference though incurred a long time before death; the question is whether or not it was the decedent's last illness which finally resulted in death, and whether the sickness was progressive from the first services rendered to the time of death;[78]

[73] *Whitesell* v. *Hill*, 101 Iowa, 629, 37 L. R. A. 830, 70 N. W. 750, 66 N. W. 894.

[74] See *Styles* v. *Tyler*, 64 Conn. 432, 30 Atl. 165; *Wurdemann* v. *Barnes*, 92 Wis. 206, 66 N. W. 111; *Howell* v. *Goodrich*, 69 Ill. 556; *Robinson* v. *Campbell*, 47 Iowa, 625; *Schopen* v. *Baldwin*, 83 Hun, 234, 31 N. Y. Supp. 581; *Alder* v. *Buckley*, 1 Swan, 68.

A valid claim for services rendered by a physician may coexist with, and constitute a counterclaim against, a claim for damages sustained by the patient in consequence of malpractice. *Whitesell* v. *Hill*, 101 Iowa, 629, 37 L. R. A. 830, 70 N. W. 750, 66 N. W. 894.

But a plea of set-off in an action for medical services, that an overdose of ipecac damaged the patient $200, without stating wherein and how, is too loose and indefinite. *McKleroy* v. *Sewell*, 73 Ga. 657.

[75] See *Piper* v. *Menifee*, 12 B. Mon. 465, 54 Am. Dec. 547; *Langolf* v. *Pfromer*, 2 Phila. 17; *Schopen* v. *Baldwin*, 83 Hun, 234, 31 N. Y. Supp. 581.

And persons employing a physician cannot be made liable for extraordinary services performed in experimenting upon the patient for the purpose of discovering new and improved methods of treatment; and a physician cannot be permitted to testify, in an action for his services, as to discoveries he made while caring for the patient. *Gardner* v. *Tatum*, 81 Cal. 370, 22 Pac. 880.

[76] *Baker* v. *Wentworth*, 155 Mass. 338, 29 N. E. 589.

And the fact that a patient supposed the hospital she was in to be the private hospital of her physician is immaterial in an action by the physician against the patient's husband for compensation, where neither the physician nor anyone acting for him ever made any representation to that effect. *Ibid.*

[77] See *Rouse* v. *Morris*, 17 Serg. & R. 328.

The act of a physician attending a patient in his last illness, of giving his account to the executor and demanding payment, when the executor, the estate being insolvent, filed the claim with the commissioners, does not constitute a waiver by the physician of his preference over ordinary claims. *Flitner* v. *Hanly*, 18 Me. 270.

[78] *Staggers's Estate*, 8 Pa. Super. Ct. 260; *Huse* v. *Brown*, 8 Me. 167; *Percival* v. *McAvoy*, Dud. L. 337.

Where a physician treated a patient for an incurable disease, but during such treatment the patient received a wound which was the immediate cause of his death, the physician is not entitled to preference for the amount of his bill for services previous to the injury, under a statutory provision giving a privilege for all charges of whatever nature occasioned by the last sickness. *Whitaker's Succession*, 7 Rob. (La.) 91.

and it is a question of fact to be determined from all the circumstances.[79] And where the statutory provision gives preference to physic, funeral expenses, etc., the preference is not confined to drugs administered, but includes every service or medical aid rendered by a physician to his patient,[80] and attendance upon the debtor's family as well as himself.[81] And in such case the claim is not confined to service and attendance during the last illness of the deceased, but may be made out of the assets of a deceased insolvent in case of a previous illness.[82] Physicians appointed by the court in pending actions to make examinations have been given preference by treating them as quasi officers of the court, entitled to compensation as such out of funds in litigation.[83]

II. Proceedings for recovery.

490. Methods of procedure generally.—Proceedings for the recovery of compensation for medical services rendered differ from proceedings for the recovery of compensation for other services in general, only as affected by the peculiar character of the service. Assumpsit is the proper action, when the services were rendered without special contract.[84] And, under a plea of *non assumpsit,* it may be shown that at the time of the rendition of the services the plaintiff had no authority to practise medicine.[85] A plea of no license to practise, however, must show that the act in question was performed within the locality covered by the statutory restriction.[86] And it is too late to object to the failure of the plaintiff to plead that he was licensed, after the defendant has pleaded to the merits and the case has been

[79] *Staggers's Estate,* 8 Pa. Super. Ct. 260; *Huse* v. *Brown,* 8 Me. 167; *Percival* v. *McAvoy,* Dud. L. 337.

[80] *Rouse* v. *Morris,* 17 Serg. & R. 328.

[81] *Ibid.*

But the estate of a deceased person in the hands of his administrator is not liable for medical services rendered to the family of the deceased after his death. *Bomford* v. *Grimes,* 17 Ark. 567.

[82] *Rouse* v. *Morris,* 17 Serg. & R. 328.

[83] *Rollwagen* v. *Powell,* 8 Hun, 210.

[84] *Morrisette* v. *Wood,* 128 Ala. 505, 30 So. 630.

And a statute entitling a defendant, upon proper notice, to a list of the items composing an account when it is the foundation of a suit, applies to an action of assumpsit brought by a physician to recover for medical services rendered in the absence of special contract. *Ibid.*

And the fact that a physician brings an action of assumpsit for compensation for services does not prevent a recovery by him for a less sum than that named in the declaration. *Pynchon* v. *Brewster,* Quincy (Mass.) 224.

[85] *Matthews* v. *Turner,* 2 Stew. & P. (Ala.) 239.

And a note drawn by a physician to the order of his patient may be pleaded in compensation in an action by a physician against the patient for compensation for services rendered in his professional capacity. *Arbonneaux* v. *Letorey,* 6 Rob. (La.) 456.

[86] *D'Allax* v. *Jones,* 26 L. J. Exch. N. S. 79, 2 Jur. N. S. 979.

submitted.[87] And the violation of a physician's obligation to use ordinary care and skill, to the injury of the patient, may be interposed as a defense in the nature of a bar to a suit for compensation, as well as used as a ground for an independent action.[88] The ordinary statute of limitations, and not a special one with reference to actions on account for goods sold, applies.[89] And when the service is rendered and charged for item by item, the statute begins to run against each item at the time it was rendered.[90]

A physician's employment is usually personal; and where a recovery is sought for services rendered by another physician sent in his stead, that fact should be alleged in the complaint.[91] And a recovery cannot be had for medical services, under pleadings based upon the theory that the services were of another and different character.[92] And it is competent for the defendant to prove the real value of the plaintiff's services, or that they were of no value, though the action was upon a *quantum meruit;* and for that purpose he may show the customary charges for like services in the same locality.[93] Evidence of the value of medical services is inadmissible, however, in an action for recovery for such services, under an allegation setting forth a special contract.[94]

[87]*Durand* v. *Grimes,* 18 Ga. 693.

[88]*Styles* v. *Tyler,* 64 Conn. 432, 30 Atl. 165; *Ladd* v. *Witte,* 116 Wis. 35, 92 N. W. 365.

And a plea in an action for recovery of compensation for medical services, that by misrepresentation the plaintiff led the defendant to believe the medical services to be necessary when they were not, arises out of the transaction stated in the complaint, and is properly pleadable even after appeal taken. *Ladd* v. *Witte,* 116 Wis. 35, 92 N. W. 365.

[89]*Hazlip* v. *Leggett,* 6 Smedes & M. 326.

[90]*Ackley* v. *Fishbeck,* 124 Cal. 409, 57 Pac. 207; *Jones* v. *Lewis,* 1 Tex. App. Civ. Cas. (White & W.) p. 189.

But where physicians keep accounts which by custom become due at the end of each year, they are entitled to interest thereon from the end of each year respectively. *Woodfield* v. *Colzey,* 47 Ga. 121.

[91]*Sayles* v. *FitzGerald,* 72 Conn. 391, 44 Atl. 733.

And where medical services are performed upon the request of two persons, and the evidence establishes a contract upon the part of both, if of either, a nonjoinder of one may be taken advantage of by the other. *Smith* v. *Watson,* 14 Vt. 332.

[92]*Roberts* v. *Levy* (Cal.) 31 Pac. 570; *Lee* v. *Griffin,* 30 L. J. Q. B. N. S. 252. 1 Best & S. 272, 7 Jur. N. S. 1302, 4 L. T. N. S. 546, 9 Week. Rep. 702.

But a bill of particulars for medical services, which sets out the items of each visit, and a general allegation that the plaintiff is a practising physician engaged in the practice of medicine, and has been so engaged for ten years last past, is sufficient. *Underwood* v. *Scott,* 43 Kan. 714, 23 Pac. 942.

[93]*Jonas* v. *King,* 81 Ala. 285, 1 So. 591.

But the value of services of a physician does not in any way depend upon the nature, value, or result of the services of another physician attending his patient; and evidence as to the result of the treatment of the other physician is inadmissible in an action for services rendered. *Gardner* v. *Tatum,* 81 Cal. 370, 22 Pac. 880.

[94]*Doyle* v. *Edwards,* 15 S. D. 648, 91 N. W. 322.

And a bill for medical services previously presented, not mentioning a special contract, is inadmissible in an ac-

491. Presumption and burden of proof.—The prevailing rule would seem to be that physicians, surgeons, etc., performing services as such, and seeking compensation therefor, are presumed to be duly qualified, in the absence of any showing to the contrary; and the burden rests with the defendant, in an action for such services, to show lack of qualification;[95] noncompliance with statutory requirements being a matter of defense.[96] And the burden also rests with the defendant to show fraud, or that reasonable and ordinary care and skill have not been used.[97] The contrary rule has been laid down, however, that the burden of showing compliance with the law and taking out a license, rests with a physician seeking to recover compensation,[98] though under this rule slight evidence of the right to practise is sufficient as against a person who called upon the physician for his services.[99] And a physician is entitled to recover compensation for his services as such, upon evidence that he is a practising physician, and a graduate of an incorporated school of medicine; since it may be inferred therefrom that he has received a diploma as required by law.[100]

492. Competency and sufficiency of evidence.—The usual rules as to competency, admissibility, and sufficiency of evidence, seem to apply

tion for such services alleging a special contract, for the purpose of disproving it. *Ibid.*

[95]*Robinson* v. *Campbell*, 47 Iowa, 625; *Lacy* v. *Kossuth County*, 106 Iowa, 16, 75 N. W. 689; *Jo Daviess County* v. *Staples*, 108 Ill. App. 539; *Good* v. *Lasher*, 99 Ill. App. 653; *Dickerson* v. *Gordy*, 5 Rob. (La.) 489; *Lyford* v. *Martin*, 79 Minn. 243, 82 N. W. 479; *Cather* v. *Damerell* (Neb.) 99 N. W. 35; *McPherson* v. *Cheadell*, 24 Wend. 15; *Thompson* v. *Sayre*, 1 Denio, 175; *Crane* v. *McLaw*, 12 Rich. L. 129; *Gremare* v. *Le Clerc Bois Valon*, 2 Campb. 144; *Simpson* v. *Ralfe*, 4 Tyrw. 325.

And after proof that a physician has been regularly licensed, in an action for compensation for his services as such, the burden rests with the defendant to show that the license has not been registered, where the statute requires registry to entitle the physician to a recovery. *Accetta* v. *Zupa*, 54 App. Div. 33, 66 N. Y. Supp. 303.

And under a statutory provision that in such an action the physician need not produce his license or authority to practise, unless he was notified by the defendant that such proof would be required, the notice should be to produce his license or authority upon the trial of the cause; and a notice requiring him to show cause for practising medicine and charging for services, and that authority for so doing would be demanded, is insufficient. *Jordan* v. *Brewin*, 19 Ala. 238.

[96]*Lyford* v. *Martin*, 79 Minn. 243, 82 N. W. 479.

[97]*Styles* v. *Tyler*, 64 Conn. 432, 30 Atl. 165; *Bellinger* v. *Craigue*, 31 Barb. 534.

[98]*Cooper* v. *Griffin*, 13 Ind. App. 212, 40 N. E. 710; *Adams* v. *Stewart*, 5 Harr. (Del.) 144; *Conkey* v. *Carpenter*, 106 Mich. 1, 63 N. W. 990; *Dow* v. *Haley*, 30 N. J. L. 354; *North Chicago Street R. Co.* v. *Cotton*, 140 Ill. 486, 29 N. E. 899.

This rule is put upon the ground that the education and experience of a physician are peculiarly within his own knowledge, in *Conkey* v. *Carpenter*, 106 Mich. 1, 63 N. W. 990.

[99]*Chicago & A. R. Co.* v. *Smith*, 21 Ill. App. 202.

As between third parties, the fact that a physician has for a long time been practising as such is sufficient to show prima facie that he is lawfully authorized to do so. *North Chicago Street R. Co.* v. *Cotton*, 140 Ill. 486, 29 N. E. 899.

[100]*Rider* v. *Ashland County*, 87 Wis. 160, 58 N. W. 236.

to actions for compensation for medical services.[1] In the absence of statutory regulation as to the right to practise, the qualifications of a physician are sufficiently shown in a suit for services by proof of his admission to practise on graduation from some reputable college, or on a proper amount of study, skill, and experience.[2] And books of original entries of a physician are admissible, though not conclusive evidence as to the value of the services therein charged[3] and the number of visits made.[4] But in order to authorize a verdict in his favor upon his medical account, he must prove by persons who had dealings with him that he was in the habit of keeping correct books.[5] And the charges must be specific, and not loose and general.[6] And a rea-

[1] See *Curry* v. *Shelby*, 90 Ala. 277, 7 So. 922; *Sayles* v. *FitzGerald*, 72 Conn. 391, 44 Atl. 733; *Lacy* v. *Kossuth County*, 106 Iowa, 16, 75 N. W. 689; *Robinson* v. *Campbell*, 47 Iowa, 625; *Williams* v. *Griffith Wheel Co.* 84 Minn. 279, 87 N. W. 773; *Abram Bros.* v. *Krakower*, 84 N. Y. Supp. 529; *Abrahams* v. *Kock*, 88 N. Y. Supp. 148.

There is no definite standard as to the quantity of testimony required to establish a physician's claim for services. It is a question which the jury alone can determine; and an instruction that in civil cases the jury is bound to find according to the preponderance of the testimony lays down the law too broadly. *Mays* v. *Williams*, 27 Ala. 267.

[2] *Conkey* v. *Carpenter*, 106 Mich. 1, 63 N. W. 990. And see *Trentham* v. *Waldrop*, 119 Ga. 152, 45 S. E. 988.

A medical license is competent evidence in an action brought by a physician to recover for medical services rendered, without proof of the signatures attached to it. *White* v. *Mastin*, 38 Ala. 147.

But a diploma, under statutory provision prohibiting a recovery of a physician's account for services as such unless he had a license from a medical board, affords no authority to practise medicine, and therefore is not competent evidence in an action for the recovery of a physician's account for services. *Richardson* v. *Dorman*, 28 Ala. 679.

[3] *Langolf* v. *Pfromer*, 2 Phila. 17; *Richardson* v. *Dorman*, 28 Ala. 679; *Vosburgh* v. *Thayer*, 12 Johns. 461; *Atwood* v. *Barney*, 80 Hun, 1, 29 N. Y. Supp. 810; *Foster* v. *Coleman*, 1 E. D. Smith, 85; *McBride* v. *Watts*, 1 McCord, L. 384; *Re Fulton*, 178 Pa. 78, 35 L. R. A. 133, 35 Atl. 880.

[4] *Clarke* v. *Smith*, 46 Barb. 30.

And a physician's book of original entries is good evidence both as to medicine administered and as to the person at whose instance the services were rendered. *McBride* v. *Watts*, 1 McCord, L. 384.

The account books of a physician are not evidence in his favor, however, in a controversy with a patient as to the time of his visits to other patients. *Leighton* v. *Sargent*, 31 N. H. 119, 64 Am. Dec. 328.

[5] *Bower* v. *Smith*, 8 Ga. 74; *Pickler* v. *Caldwell*, 86 Minn. 133, 90 N. W. 307; *Simmons* v. *Means*, 8 Smedes & M. 397; *Beatty* v. *Clark*, 44 Hun, 126; *Knight* v. *Cunnington*, 6 Hun, 100. And see also *Halliday* v. *Butt*, 40 Ala. 178. But see *Clarke* v. *Smith*, 46 Barb. 30.

And that a physician practised in the family of a person, and was seen coming and returning from his house, together with proof that the items charged were according to customary rates, is not sufficient evidence to sustain a verdict for medical service rendered and medicine supplied. *Simmons* v. *Means*, 8 Smedes & M. 397; *Hazlip* v. *Leggett*, 6 Smedes & M. 326.

[6] *Hughes* v. *Hampton*, 2 Treadway, Const. 745; *Schmidt* v. *Quin*, 1 Mill, Const. 418; *Collins* v. *Graves*, 13 La. Ann. 95.

A charge for "medicine" in a physician's book of original entries is as distinct and certain and definite as the law demands, though medicine is a combination of several drugs in largely different proportions. *Staggers's Estate*, 8 Pa. Super. Ct. 260; *Bassett* v. *Spofford*, 11 N. H. 167.

It is not customary or necessary for physicians to make a definite charge for each particular item of service rendered; and a bill of particulars in an

sonable doubt or disbelief of the qualifications of a physician, induced in the minds of the jury in an action for services by the nature of the entries in his books, will justify a reduction or rejection of the charge.[7]

Nor are the testimony or declarations of a physician in an action for services rendered a decedent during his lifetime incompetent as relating to a transaction with, or statement of, a deceased person.[8] And the nature of a patient's trouble, and the character of the treatment given, are competent on the question of the value of the services rendered.[9] And other medical men may give their opinions based on knowledge of the facts as to the value of a physician's services.[10] And where the action is on a *quantum meruit,* and there is no conflict in the evidence of the experts as to the reasonable value of the services of a physician, the jury cannot disregard it and act on their own judgment.[11] But courts are not bound by the opinions of medical witnesses as to the value of medical services.[12] And the exclusion of such opinions is not error, where those referred to were of a different character from those sought to be recovered for.[13] The general character of a physician, as such, however, is not admissible in evidence in

action for services is not insufficient because it does not state the exact price charged for each and every visit or service. *Van Bibber* v. *Merrit,* 12 W. N. C. 272.

Whether or not medical accounts are too general to enable the defendant to investigate their propriety or reasonableness is a question resting largely in the discretion of the trial court. *Schmidt* v. *Quin,* 1 Mill, Const. 418.

[7]*Langolf* v. *Pfromer,* 2 Phila. 17.

Likewise, an objection to the book of registration of physicians, that it was not official, must be specific; an objection that it was incompetent, immaterial, and irrelevant, is insufficient. *Accetta* v. *Zupa,* 54 App. Div. 33, 66 N. Y. Supp. 303.

[8]*Corbus* v. *Leonhardt,* 51 C. C. A. 636, 114 Fed. 10; *McDonald* v. *Harris,* 131 Ala. 359, 31 So. 548.

[9]*Kendall* v. *Grey,* 2 Hilt. 300.

[10]*MacEvitt* v. *Maass,* 64 App. Div. 382, 72 N. Y. Supp. 158; *Ward* v. *Ohio River & C. R. Co.* 53 S. C. 10, 30 S. E. 594. And see *Mock* v. *Kelly,* 3 Ala. 387.

And the evidence of a physician, who attended a person suffering a personal injury, as to the value of his services, is competent and admissible in an action for damages for the injury. *Chicago* v. *Wood,* 24 Ill. App. 40; *Kwiecinski* v. *Newman* (Mich.) 100 N. W. 391.

But a nonmedical witness cannot give his opinion as to the value of medical services rendered, though he had previously heard a medical expert express his opinion on that subject. *Mock* v. *Kelly,* 3 Ala. 387.

[11]*Ladd* v. *Witte,* 116 Wis. 35, 92 N. W. 365; *McKnight* v. *Detroit & M. R. Co.* 10 Det. L. N. 777, 97 N. W. 772; *Wood* v. *Barker,* 49 Mich. 295, 13 N. W. 597.

There is no presumption of law concerning the value of a surgeon's services, and none that a jury can ascertain it without testimony of some kind from persons knowing something about such value. *Wood* v. *Barker,* 49 Mich. 295, 13 N. W. 597.

[12]*Re Smith,* 18 Misc. 139, 41 N. Y. Supp. 1093.

[13]*Trenor* v. *Central P. R. Co.* 50 Cal. 222.

And the reasonableness of the charge of a physician cannot be established by proof of what the same physician had charged another person in a similar case. *Collins* v. *Fowler,* 4 Ala. 647.

And evidence of a surgeon, employed by a railroad company to attend to persons injured in an accident, as to what he received for his services, is inadmis-

such an action,[14] and that others were treated at the same time and place is immaterial on the question of the value of a physician's services.[15]

sible on the question of the reasonableness of the charges of another surgeon similarly employed. *McKnight* v. *Detroit & M. R. Co.* 10 Det. L. N. 777, 97 N. W. 772.

[14]*Jeffries* v. *Harris,* 10 N. C. (3 Hawks) 105; *Prietto* v. *Lewis,* 11 Mo. App. 600.

And ill repute is not competent as tending to show that no contract for medical services was made. *Prietto* v. *Lewis,* 11 Mo. App. 600.

But that the medicine used was worthless, and possessed no efficacy in producing the results for which it was used, is competent in an action by a physician for services; and in order to show this, evidence of its ingredients and nature is competent, and is not rendered incompetent by a claim upon the part of a physician of property in the secret of his remedy. *Jonas* v. *King,* 81 Ala. 285, 1 So. 591.

[15]*Kwiecinski* v. *Newman* (Mich.) 100 N. W. 391.

CHAPTER XVIII.

OFFICIAL EMPLOYMENT AND DUTIES OF PHYSICIANS AND SURGEONS.

493. In prisons and jails.—It is the universal practice of the state governments in the exercise of their police power to supply proper medical attendance to persons confined in prisons; and it is the duty of the board of commissioners, or other legislative body of a county, to furnish all needful medical aid and attendance to persons confined in the jails of the county.[1] And a physician may be employed either by the single visit from time to time or by the year.[2] And the county is liable to a physician thus employed for proper compensation for services rendered under the contract of employment.[3]

494. For the indigent poor.—It is the duty of the board of commissioners, or other legislative body of a county, to furnish all needful medical attendance to such poor persons as are a county charge.[4] And authority upon the part of a municipality to provide for the indigent authorizes its council to elect or appoint a physician to render such medical services.[5] Medical attendance under an appointment of a

[1] *Rider* v. *Ashland County*, 87 Wis. 160, 58 N. W. 236.

[2] *Ibid.*

[3] *Ibid.*

And where a physician of a penitentiary can only be removed by inspectors, and the lessee of the penitentiary was required to pay the physician a stipulated amount at stated times, he cannot avoid his liability by refusing to admit him to the hospital of the penitentiary; and the physician has a right to recover notwithstanding the fact that the lessee had prevented him from discharging his official duties. *Jones* v. *Graham*, 21 Ala. 654.

[4] *Rider* v. *Ashland County*, 87 Wis. 160, 58 N. W. 236.

[5] *Tucker* v. *Virginia*, 4 Nev. 20.

A municipal corporation authorized to elect a city physician, establish a city infirmary, provide for the indigent, and make all necessary contracts and agreements for the benefit of the city, has power to contract for the care and maintenance of the indigent sick at a private hospital, where it has no infirmary. *Ibid.*

And under statutory provision authorizing township trustees to provide medical relief for poor persons in their respective townships, to be paid for by order of the board of supervisors, such trustees have authority to provide relief for poor persons who, in their judgment, should not be sent to the poor-

physician to render services to the indigent poor of a county includes cases of surgery, as well as of the administration of medicine.[6] And a physician rendering surgical services to paupers, under official appointment, is authorized to employ assistants in a case in which assistance is necessary, and to recover compensation for the services of such assistants.[7] And where a city council has power to elect a physician, and his duties are not prescribed in the act giving the power, the council has the power to declare what they shall be.[8] The county or municipality contracting for such services under due authority, through its properly constituted officers, is bound thereby, and may be held liable therefor whether the contract was express or implied;[9] and a recovery may be had on a *quantum meruit* if the amount of the physician's compensation was not fixed.[10] And where the statute makes medical services rendered to an indigent person a public charge on the county, but does not prescribe a remedy for the enforcement of the right thereby created, the physician may proceed for recovery of compensation for his services either by action at law or by mandamus.[11] In engaging medical services previous statutory

house; and the board of supervisors has no authority, in the absence of statutory provision, arbitrarily to limit the amount to be paid, but must allow the reasonable value of the services rendered. *Hunter* v. *Jasper County*, 40 Iowa, 568. And see *Mansfield* v. *Sac County*, 60 Iowa, 11, 14 N. W. 73.

[6] *Wetherell* v. *Marion County*, 28 Iowa, 22; *Clinton County* v. *Ramsey*, 20 Ill. App. 577.

But power on the part of a municipal corporation to make all necessary provision for the maintenance of the indigent and for medical attendance upon them does not authorize the furnishing of medical attendance for the police or other city officers who are not indigent. *Tucker* v. *Virginia*, 4 Nev. 20.

[7] *Jay County* v. *Brewington*, 74 Ind. 7.

[8] *Tucker* v. *Virginia*, 4 Nev. 20.

Municipal authority to employ physicians for the indigent poor, however, is to be strictly construed. *Ibid.*

[9] *Ibid.*

And a certificate of a board of health attached to a physician's statement of account presented to the board of supervisors, stating that he was employed by the board to perform the services stated, and that the bill is correct and in accord with the contract made with him, is properly attached to his bill and presented to the board; and when so attached, it becomes a part of his claim, and as such is admissible in evidence in an action to recover from the county, as for services rendered to a pauper. *Lacy* v. *Kossuth County*, 106 Iowa, 16, 75 N. W. 689.

And the directors of the poor of a county who have become responsible for the maintenance and relief of all persons chargeable upon the county are liable to physicians who rendered surgical and medical aid in cases of emergency to persons who at the time or shortly after became chargeable upon the county, although such directors had contracted with other physicians for such services. *Westmoreland County* v. *Donnelly* (Pa.) 5 Cent. Rep. 269, 7 Atl. 204.

But a physician who rendered services to a poor person at the instance of the county commissioner cannot recover therefor from the county in the absence of an appropriation, under a statute providing that no court of any county shall have power to bind the county by judgment to any extent beyond the appropriation for the purpose for which the obligation is incurred. *Gish* v. *St. Joseph County*, 31 Ind. App. 485, 68 N. E. 318.

[10] *Tucker* v. *Virginia*, 4 Nev. 20.

[11] *Autauga County* v. *Davis*, 32 Ala. 703.

And a complaint by a physician for

authority must be strictly complied with.[12] And where an overseer of the poor makes contracts for medical services without sufficient authority to legally bind the township, he is personally responsible, although the contract may be in the name of the township, and credit was given to it.[13]

495. Municipal employment in case of epidemic.—The power is inherent in a municipality, though in the absence of statutory provision, to employ a physician in a time of epidemic or pest;[14] and a town board cannot delegate such power to a committee.[15] And persons

services rendered to an indigent sick person, in an action against a county under a statute making such services a county charge, is sufficient, where he claims a specified sum due for medicine furnished and medical services rendered to a named person at a designated time, and that such person was a resident of the county, and was sick in the county at the time the services were rendered, and was in such a destitute condition as to require public charity and prompt attention. *Ibid.*

And declarations of a physician on leaving home and taking medicines with him as to the place to which he was going and the purpose of his visit are admissible evidence in such an action as a part of the *res gestæ*. *Ibid.*

[12] See *Gish* v. *St. Joseph County*, 31 Ind. App. 485, 68 N. E. 318; *Mansfield* v. *Sac County*, 60 Iowa, 11, 14 N. W. 73; *Taber* v. *State Hospital for Insane*, 127 Fed. 174.

And when the board of supervisors of a county in which there is no poorhouse employs a convenient and competent physician to furnish such medicines and medical aid as may be required by poor persons, the trustees of a township in that county, though they have the care and oversight of such persons in their township, may not disregard such employment by the board of supervisors, and employ other physicians to furnish medicines and medical aid to poor persons in their townships, and bind the county for the payment thereof, where the county physician is ready and able to furnish such medicines and medical aid. *Mansfield* v. *Sac County*, 59 Iowa, 694, 13 N. W. 762, Affirmed in 60 Iowa, 11, 14 N. W. 73; *Gawley* v. *Jones County*, 60 Iowa, 159, 14 N. W. 236.

[13] *Bay* v. *Cook*, 22 N. J. L. 343.

[14] *Vionet* v. *First Municipality*, 4 La. Ann. 42; *Lacy* v. *Kossuth County*, 106 Iowa, 16, 75 N. W. 689; *Zimmerman* v. *Cheboygan County* (Mich.) 10 Det. L. N. 255, 95 N. W. 535; *Congdon* v. *Nashua*, 72 N. H. 468, 57 Atl. 686. And see *Thomas* v. *Mason*, 39 W. Va. 526, 26 L. R. A. 727, 20 S. E. 580; *Keefe* v. *Union*, 76 Conn. 160, 56 Atl. 571; *Board of Health* v. *Renville County*, 89 Minn. 405, 95 N. W. 221.

And a mere oral employment of a city physician at extra compensation to attend smallpox patients is valid in the absence of any contrary requirement of statute or ordinance; and such an employment is established by showing his request therefor to the common council in session, and a reply by one member that he should go on, and that they would do what was right. *Selma* v. *Mullen*, 46 Ala. 411.

[15] *Young* v. *Blackhawk County*, 66 Iowa, 460, 23 N. W. 923. And see *Preble* v. *Bangor*, 64 Me. 115.

And the act of the council of a city of providing another officer to supply the necessary medical attendance upon paupers, and other patients afflicted with contagious diseases, shows that the furnishing of such attendance was not intended to be committed to the health officers of the town in which the city is situated, where there is nothing to show that the health officers have been authorized to furnish such attendance at the expense of the city. *Congdon* v. *Nashua*, 72 N. H. 468, 57 Atl. 686.

But a statute authorizing county commissioners to take measures to prevent the spread of smallpox, and to employ the assistance of physicians, is a remedial act, to be liberally construed; and where one of the commissioners in good faith employs a physician without previous authority, who renders services and incurs expenses reasonably necessary to prevent the spread of contagion, the board may subsequently ratify such employment, and make the expenses so incurred, when just and rea-

affected with contagious diseases are patients under the care of the city authorities, upon whom a city physician is bound to attend when they are confined for the protection of the public.[16] And the employment of a physician, under authority, to provide for the wants of persons suffering from an epidemic, when necessary for the safety of the public, makes the township liable for his compensation.[17] Where, however, the statute provides only for necessary medical attendance and services rendered during the prevalence of epidemic diseases, services and medicine rendered and furnished to indigent persons, and services and general supervision reasonably necessary to quarantine and keep contagious diseases under control and prevent their spread, are all that can be recovered for against the municipality;[18] no recovery can be had for services rendered to persons who are able to pay for them,[19] though the rule might be different in case of a temporary condition of pauperism while in the pesthouse.[20] And the financial ability of persons vaccinated does not prevent a person

sonable, a valid county charge. *Schmidt* v. *Stearns County*, 34 Minn. 112, 24 N. W. 358.

[16]*Congdon* v. *Nashua*, 72 N. H. 468, 57 Atl. 686.

And the fact that the duty is to be performed under the general direction of the overseer of the poor does not limit the city physician's duty as such, and he is only entitled to payment for his services as such physician. *Ibid.*

[17]*Wilkinson* v. *Long Rapids Twp.* 74 Mich. 63, 41 N. W. 861.

A physician contracting with a duly authorized board of health to render services at a specified compensation to indigent persons affected with contagious diseases has a vested right in such compensation, though a statute authorizing boards of supervisors to pass upon the reasonableness of claims took effect before his claim was allowed. *Kapp* v. *Washtenaw County* (Mich.) 100 N. W. 603.

[18]*Laurel County Court* v. *Pennington* (Ky.) 80 S. W. 820; *Hudgins* v. *Carter County*, 24 Ky. L. Rep. 1980, 72 S. E. 731.

[19]*Ibid.*; *McIntire* v. *Pembroke*, 53 N. H. 462; *Wilkinson* v. *Albany*, 28 N. H. 9. And see *Gill* v. *Appanoose County*, 68 Iowa, 20, 25 N. W. 908.

A complaint in an action by a physician against a county for compensation for treating a pauper, not alleging the inability of the relatives of the pauper to pay, is demurrable; but the objection cannot be first taken on appeal. *Lacy* v. *Kossuth County*, 106 Iowa, 16, 75 N. W. 689.

And the burden of proof rests with physicians appointed as health officers of cities, towns, and counties, seeking to recover compensation from such cities, towns, and counties for services rendered to individuals, to establish the inability of such persons to pay. *Laurel County Court* v. *Pennington* (Ky.) 80 S. W. 820.

And evidence that the father of a patient had no property out of which a physician's bill could be collected, offered in an action by the physician against the county for services to a pauper for the purpose of showing the inability of the father to pay, is not subject to objection that it is hearsay, and not the best evidence. *Lacy* v. *Kossuth County*, 106 Iowa, 16, 75 N. W. 689.

[20]*McIntire* v. *Pembroke*, 53 N. H. 462; *Wilkinson* v. *Albany*, 28 N. H. 9.

But the act of a health officer who attended a family ill with a contagious disease, in making out a bill to the town for such attendance, and presenting the bill, which was acted upon by the town auditors, and of voluntarily accepting and receiving the amount allowed, extinguishes his claim against the person whose family was ill of the contagious disease. *Wood* v. *Munson*, 70 Hun, 468, 24 N. Y. Supp. 287.

employed by the town from recovering of the town for vaccinating them, where the appointment was made under authority to vaccinate all persons at public expense.[21] And a city council may give or agree to give additional compensation for services more onerous than anticipated.[22] So, authority to provide pesthouses, and take the most prudent measures in case of smallpox, extends to the incurring of expense in vaccinating inhabitants when they are exposed to the disease by reason of proximity.[23] And a city physician is justified, under a requirement of all possible care to prevent the spread of contagious diseases, in advising and requiring the removal of paper from the walls of rooms in which smallpox patients have been kept, though physicians may differ as to its necessity.[24] A statute prohibiting a member of a municipal board or other public body from being interested in any contract authorized to be made or entered into by the board does not prevent a physician who is a member of the board of health from being employed to render professional services to patients in quarantine, where the law requires that one member of the board of health shall be a practising physician and surgeon; the very purpose of the law being to provide the board with a person competent to treat diseases of a contagious character.[25] And the fact that a physician rendering services to a patient for which the county was liable was a member of the board and participated in the allowance of his claim against the county does not invalidate the allowance.[26]

[21] *Wilkinson* v. *Albany*, 28 N. H. 9; *McIntire* v. *Pembroke*, 53 N. H. 462.

[22] *Congdon* v. *Nashua*, 72 N. H. 468, 57 Atl. 686.

And an ordinance of a city entitling a city physician whose salary is to be determined by the city council, in cases of infectious diseases, to such additional compensation as the city council may deem just, does not apply simply to services rendered to paupers, but applies so as to require the compensation to be fixed by the city council for attendance upon all cases of such diseases for the city. *Preble* v. *Bangor*, 64 Me. 115.

But a board of health whose powers are conferred upon it by general law, though it may have power to contract in behalf of a city within its jurisdiction for medical attendance upon persons in quarantine in case the city physician is unable, unwilling, or incompetent to furnish such attendance as is required, has no authority to raise the salary of the city physician, or bind the city to pay him more for his services than the sum for which, by accepting the office, he agreed to perform its duties. *Congdon* v. *Nashua*, 72 N. H. 468, 57 Atl. 686.

[23] *Hazen* v. *Strong*, 2 Vt. 427.

[24] *Seavey* v. *Preble*, 64 Me. 120.

A physician who makes a suggestion to a smallpox inspector inspecting his patient, with reference to such patient, by way of enlightening the judgment of the inspector, which does not amount to an attempt to pervert such judgment, or an appeal to him not to act upon his own observation and inferences, is not liable to the patient because the suggestion was a mistaken one; since in so doing he was performing a public function rather than one constituting a part of his duty to his patient. *Brown* v. *Purdy*, 22 Jones & S. 109.

[25] *Board of Health* v. *Renville County*, 89 Minn. 402, 95 N. W. 221.

[26] *Cedar Creek Twp.* v. *Wexford County* (Mich.) 10 Det. L. N. 698, 97 N. W. 409.

But a physician who is a member of a board of health should not be permitted to recover for services in vaccinating

496. In coroners' inquests and post-mortem examinations.—The coroner is a public agent, and, as such, has authority to employ a physician at an inquest to make an examination of the body of the deceased person in question, at the public charge, as an ancillary service necessary to the proper execution of his office.[27] And a statute making it the duty of a coroner to use all proper means to ascertain the truth concerning the death of persons over whose bodies he is required to hold an inquest authorizes him to employ a physician to make an autopsy and ascertain the cause of the death, since that is the only proper means by which the truth can be ascertained.[28] And it is the duty of a physician so summoned to obey the summons,[29] it being sufficient to warrant his action in the premises that the proper officer of the county required his services: it is not his business to institute an investigation to determine whether or not an inquest should be made.[30] And where some other officer or officers are authorized to perform the duties of coroner in his absence, the officer or officers thus authorized have the same power as the coroner to employ and require the attendance of a physician at a post-mortem examination.[31] And

school pupils, under employment by the board, on the ground of public policy. *Ft. Wayne* v. *Rosenthal*, 75 Ind. 156, 39 Am. Rep. 127.

[27]*Allegheny County* v. *Watt*, 3 Pa. St. 462; *Northampton County* v. *Innes*, 26 Pa. 156; *Pueblo County* v. *Marshall*, 11 Colo. 84, 16 Pac. 837; *Gaston* v. *Marion County*, 3 Ind. 497; *Dearborn County* v. *Bond*, 88 Ind. 102; *Van Hoevenbergh* v. *Hasbrouck*, 45 Barb. 197.

And a statute providing that each coroner of a city shall, on assuming office, appoint a qualified physician who shall be a resident of the city, and shall be known as the coroner's physician; and that any vacancy in the office of coroner's physician shall be filled by the board of coroners; and that the board of coroners, for cause, may remove the physician appointed by them,—limits the right of removal to cases where cause is shown, and, by necessary implication, the tenure of the coroner's physician continues during the term of the appointing power, subject to earlier removal for cause. *People ex rel. Williams* v. *Zueca*, 36 Misc. 260, 73 N. Y. Supp. 311.

[28]*St. Francis County* v. *Cummings*, 55 Ark. 419, 18 S. W. 461; *Jameson* v. *Bartholomew County*, 64 Ind. 524.

A post-mortem examination consists of an examination of a body after death, and does not necessarily imply an autopsy, which is the examination of a dead body by dissection to ascertain the cause of death. *Wehle* v. *United States Mut. Acci. Asso.* 11 Misc. 36, 31 N. Y. Supp. 865.

[29]*Pueblo County* v. *Marshall*, 11 Colo. 84, 16 Pac. 837.

Where a coroner is not required to keep a complete record of his proceedings, the fact that in the discharge of his official duty he employed a physician to make a post-mortem examination of the body of a person found dead may be proved by parol testimony of any witness who has knowledge of the fact. *Jay County* v. *Gillum*, 92 Ind. 511.

[30]*Northampton County* v. *Innes*, 26 Pa. 158; *Pickett* v. *Erie County*, 19 W. N. C. 60; *Pueblo County* v. *Marshall*, 11 Colo. 84, 16 Pac. 837.

The right of a physician called upon by a coroner to make a post-mortem examination to act and receive compensation therefor is not dependent upon the technical question of the legal right of the coroner, or of an alderman or justice acting as coroner, to hold the inquest. *Pickett* v. *Erie County*, 19 W. N. C. 60.

[31]*Dubois County* v. *Wertz*, 112 Ind. 268, 13 N. E. 874; *Pickett* v. *Erie County*, 19 W. N. C. 60.

A physician attending a post-mortem

where the coroner has power to employ proper physicians and surgeons, the county commissioners, or other legislative body of the county, cannot control his choice by the employment of another physician, or the appointment of a medical adviser to the coroner.[32] The employment of a physician to make a post-mortem examination at an inquest, being within the authority of a coroner, his contract therefor will bind his county to the payment of a reasonable compensation for services rendered.[33]

A county is responsible for what the services of a physician rendered at the instance of a coroner in making a post-mortem examination at an inquest are reasonably worth as a cost of administration of the criminal laws;[34] though under some of the statutes the amount of compensation is to be determined by the county board like other claims against the county, the coroner not being authorized to bind the

examination on summons of a justice of the peace is entitled to compensation on the certificate of the justice, under statutory provision that, when a physician is required to attend an inquest held by a coroner, the coroner shall certify such services to the board of county commissioners, who shall order payment therefor; and that, when the coroner shall be absent or unable to attend, any justice of the peace of the proper county may hold an inquest. *Stevens* v. *Harrison County*, 46 Ind. 541.

[32] *Dearborn County* v. *Bond*, 88 Ind. 102; *Allegheny County* v. *Shaw*, 34 Pa. 301.

[33] *Northampton County* v. *Innes*, 26 Pa. 156; *Pickett* v. *Erie County*, 19 W. N. C. 60; *Clark County* v. *Kerstan*, 60 Ark. 508, 30 S. W. 1046; *Jameson* v. *Bartholomew County*, 64 Ind. 524; *Dubois County* v. *Wertz*, 112 Ind. 268, 13 N. E. 874; *Lang* v. *Perry County*, 121 Ind. 133, 22 N. E. 667; *People ex rel. Sherman* v. *St. Lawrence County*, 30 How. Pr. 173.

But a county cannot be held liable to pay the reasonable fees of a physician who makes a post-mortem examination at a coroner's inquest, under statutory provisions making counties of the state chargeable with certain costs and expenses specified, not including such physician's fees: in such case they are a charge against the state and not the county. *Fears* v. *Nacogdoches County*, 71 Tex. 337, 9 S. W. 265; *Frio County* v. *Earnest* (Tex.) 16 S. W. 1036.

And a children's hospital supported by voluntary contributions, and founded for the free admission and relief of patients within a certain area upon production of a governor's letter, and of patients outside that area by the payment of a small weekly sum, is a public hospital within a proviso of a statute that, where an inquest is held on the body of a person who has died in a public hospital, the medical officer whose duty it may have been to attend the deceased as medical officer of the hospital shall not be entitled to fee or remuneration for making a post-mortem examination, and attending to give evidence; and a medical man practising in the neighborhood who held the appointment of honorary medical officer to such hospital, for which he received no remuneration, is the medical officer of a public hospital, whose duty it is to attend a person in such hospital, within the meaning of such proviso. *Horner* v. *Lewis*, 67 L. J. Q. B. N. S. 524, 78 L. T. N. S. 792, 62 J. P. 345.

[34] *St. Francis County* v. *Cummings*, 55 Ark. 419, 18 S. W. 461; *Marion County* v. *Chambers*, 75 Ind. 409.

And this without reference to the amount of his professional income; and such income is immaterial in an action for recovery of compensation for such services. *Marion County* v. *Chambers*, 75 Ind. 409.

And physicians shown to be medical experts are competent to testify as to the value of the services of a surgeon rendered in making a post-mortem examination, though they had no knowledge of the price usually charged for making such examinations. *Ibid.*

county by a contract for a particular sum.[35] And when such a board is given jurisdiction of a claim of a physician for services rendered in a post-mortem examination, a judgment of the board bars a suit against the county for such services; and it is not necessary to the jurisdiction that the claim should have been made in the form of a suit at law.[36] A recovery for such compensation may be had at common law, however, and, as a general rule, under the statutes, in an action against the county.[37] And the fact that a coroner's inquest was instigated for improper motives does not constitute a defense, in the absence of notice to the physician;[38] nor is it a defense that the deceased died in another county;[39] or that the physician was a resident of another county;[40] or that the services of the physician were rendered in another county.[41] And the fact that the physician employed by the coroner was also employed by the county to treat the county poor does not prevent his recovery for making a post-mortem

[35] *Jameson* v. *Bartholomew County*, 64 Ind. 524. And see *Jay County* v. *Gillum*, 92 Ind. 511; *Christie* v. *Sonoma County*, 60 Cal. 165.

And the verification by a physician of his charge against a county for making a chemical analysis for the detection of poison, and a post-mortem examination and dissection of a body by order of the coroner and district attorney, and a certification thereof by the district attorney, in no way affect the rights of the board of supervisors in auditing the account, and fixing the amount to be received. *People ex rel. Sherman* v. *St. Lawrence County*, 30 How. Pr. 173.

[36] *Gaston* v. *Marion County*, 3 Ind. 497.

And the coroner, or a justice acting in his absence, is the proper officer or tribunal, under a provision that, when a coroner or jury deem it requisite, he may summon one or more physicians or surgeons to make a scientific examination, and shall allow a reasonable compensation, exclusively charged with the duty of fixing the compensation in question; and in case of refusal to act he may be compelled to do so by mandamus. *Cushman* v. *Washington County*, 45 Iowa, 255.

But where a physician makes a post-mortem examination of a body by the direction of the coroner, under a statutory provision that the coroner or jury may, when deemed requisite, summon one or more physicians or surgeons to make a scientific examination, and allow a reasonable compensation, he is not bound by the allowance for his services made by the board of supervisors, but may recover more by showing that his services were of greater value than the amount allowed, and may recover therefor in a direct action against the county. *Moser* v. *Boone County*, 91 Iowa, 359, 59 N. W. 39.

And where the coroner, or a justice of the peace in his stead, holding a post-mortem examination, is exclusively charged with the duty of fixing the compensation of a physician employed, presentation of the physician's claim to the county board for allowance, and acceptance of the amount allowed, is not a bar or estoppel to a recovery for the whole amount. *Sanford* v. *Lee County*, 49 Iowa, 148.

[37] *Com.* v. *Harman*, 4 Pa. 269. And see *Pueblo County* v. *Marshall*, 11 Colo. 84, 16 Pac. 837; *People ex rel. Cosford* v. *Niagara County*, 38 N. Y. S. R. 964, 15 N. Y. Supp. 680.

Van Hoevenberg v. *Hasbrouck*, 45 Barb. 197, was decided under a previous New York statute, since repealed, under which a coroner had a right to employ a physician to attend at inquests; and any expense thus incurred was a proper charge against the county in the coroner's account.

[38] *Jameson* v. *Bartholomew County*, 64 Ind. 524.

[39] *Pickett* v. *Erie County*, 19 W. N. C. 60.

[40] *Bartholomew County* v. *Jameson*, 86 Ind. 154; *Jameson* v. *Bartholomew County*, 64 Ind. 524.

[41] *Ibid.*

examination of the body of a dead pauper, the making of post-mortem examinations being no part of his duty under his contract to treat the poor.[42]

497. In reporting dangerous diseases and conditions.—It is within the police power of the government to require physicians to report births, deaths, and other particulars coming to them through their professional engagements, to a proper officer or board, such a requirement being designed for the acquisition of information useful in the enactment of laws, and valuable to science and the medical profession.[43] And the government may also require physicians having patients afflicted with infectious diseases to report the fact to the proper board of health, with particulars as to name and residence of the patient, with a view to avoiding the spread of the contagion;[44] and power to pass ordinances making such requirements may properly be delegated to the common council of a city.[45] Under such provisions the report must substantially conform to the provisions of the statute requiring it.[46] But a statutory provision requiring physicians to keep a registry of special matters, and report the same to the department of health, does not require that the report shall be brought personally to the office of the health department; it is complied with if the report is sent by mail in due course.[47] When the method of

[42]*Lang* v. *Perry County*, 121 Ind. 133, 22 N. E. 667; *Gaston* v. *Marion County*, 3 Ind. 497.

[43]*Robinson* v. *Hamilton*, 60 Iowa, 134, 46 Am. Rep. 63, 14 N. W. 202; *Com* v. *McConnell*, 25 Ky. L. Rep. 552, 76 S. W. 41.

Such a provision is not unconstitutional in requiring physicians to perform a service without compensation. *Com.* v. *McConnell*, 25 Ky. L. Rep. 552, 76 S. W. 41.

And the constitutional requirement that the subject-matter of a statute must be indicated by its title is sufficiently complied with in an act entitled "An Act Providing for Registration of Marriages, Births, and Deaths," the subject-matter of which is the registry of marriages, births, and deaths, and a requirement that physicians attending at births shall make a registry thereof in the proper office. *Ibid.*

[44]*State* v. *Wordin*, 56 Conn. 216, 14 Atl. 801.

A legislative body of a state may properly require gratuitous services from one member of a community for the protection of the lives of all others. *Ibid.*

[45]*Ibid.*

[46]*People* v. *Brady*, 90 Mich. 459, 51 N. W. 537.

[47]*Health Department* v. *Owen*, 42 Misc. 221, 85 N. Y. Supp. 397, Affirmed in 88 N. Y. Supp. 184.

The burden of proof rests with a physician, under such a statute, where it does not appear that the certificate was filed, to furnish evidence of its having been properly and duly mailed, if he would escape the penalty imposed for omission to comply with the law. But the positive statements of a physician that he mailed a certificate of birth to the health department within the required time is sufficient to sustain a verdict in his favor, though he cannot give the exact date of mailing. *Health Department* v. *Owen*, 88 N. Y. Supp. 184.

And the fact that a certificate of birth was not found among the records of the proper department at the time a search was made for it is not evidence that it was not received there by mail in due course in such a prosecution. *Health Department* v. *Owen*, 42 Misc. 221, 85 N. Y. Supp. 397.

procedure for violation of the statute is not provided for, that adopted in cases of fine and forfeitures generally, is proper.[48] The indictment must state the facts, charging attendance and action as a physician at the time in question, as well as failure to report.[49] And the question whether a contagious disease existed, and whether or not the physician failed to report it within a reasonable time, is one of fact for the jury.[50] And the existence of a contagious disease may be established by circumstances and admissions as distinguished from direct investigation by skilled persons.[51] A Christian Scientist who attempts to cure disease by prayer, and by putting all thoughts of disease out of the consciousness of the sick person, however, is not a physician within the meaning of a statute requiring all physicians to report cases of contagious diseases coming under their notice to the board of health.[52]

498. In examining and certifying as to mental or physical condition.—A common statutory provision authorizes the admission or confinement of persons in asylums, hospitals, or other public institutions, or the granting of permission to engage in callings or undertakings in which human life may depend upon the qualification of the applicant, upon the certificate of a designated number of physicians, that a mental or physical condition exists in such person which authorizes such admission, confinement, or undertaking; and the certificates of physicians appointed to examine persons under such statutes are privileged communications, and protected as such, where they discharge their duty with ordinary care and skill, rules of law with reference to the exercise of care and skill applying to them, as well as to

[48] *People* v. *Brady*, 90 Mich. 459, 51 N. W. 537.

It is the duty of the district attorney, under a statute requiring him to prosecute for such penalties or forfeitures as shall have been incurred within his county, to prosecute a physician who fails to report to the health officer a case of a disease dangerous to the public health as required by law, and the prosecution brought by him is properly brought in his name, and not in the name of the state. *Ibid.*

[49] *Com.* v. *McConnell*, 25 Ky. L. Rep. 552, 76 S. W. 41.

[50] *People* v. *Brady*, 90 Mich. 459, 51 N. W. 537; *People* v. *Shurly*, 124 Mich. 645, 83 N. W. 595; *People* v. *Shurly*, 131 Mich. 178, 91 N. W. 139.

But where the jury in a prosecution against a physician for violations of a statute requiring him, when called upon to visit a case of smallpox or other disease dangerous to public health, to give notice thereof to the board of health, have determined that consumption is a contagious disease, they cannot be permitted to further determine that it is not to be classed with smallpox as dangerous to the public health; since, if the disease is contagious, the statute itself classifies it. *People* v. *Shurly*, 131 Mich. 178, 91 N. W. 139.

A delay of eight days by a physician in reporting the existence of a contagious disease, virulent and rapid in its action, is unreasonable, and will warrant his conviction under a statute imposing a penalty for failure to report. *People* v. *Brady*, 90 Mich. 459, 51 N. W. 537.

[51] *Ibid.*

[52] *Kansas City* v. *Baird*, 92 Mo. App. 204.

physicians acting under private employment.[53] Compensation for such services is usually provided for by the statute authorizing them, a usual requirement being that it be paid by the person benefited, or out of his estate.[54] And a demand for compensation from some other source, with a refusal to issue a certificate unless it is paid, is a refusal to act, warranting enforcement of the performance of the physician's duty by mandamus.[55]

[53] *Ayers* v. *Russell*, 50 Hun, 282, 3 N. Y. Supp. 338; *Niven* v. *Boland*, 177 Mass. 11, 52 L. R. A. 786, 58 N. E. 282.

The questions arising under such provisions are principally ones of malpractice. See *infra*, § 504.

[54] See *Baldwin* v. *Kouns*, 81 Ala. 273, 2 So. 638.

[55] *Baldwin* v. *Kouns*, 81 Ala. 272, 2 So. 638.

And this is so though the party liable therefor had refused to pay fees, and declared his intention to contest the constitutionality of the law. *Ibid.*

CHAPTER XIX.

MALPRACTICE.

I. General principles as to.

499. Definition.—Malpractice consists of a negligent or unskilful performance by a physician of the duties which are devolved and incumbent upon him on account of his relations with his patients,[1] or of a want of proper care and skill in the performance of a professional act.[2]

[1] *Tucker* v. *Gillette*, 22 Ohio C. C. 664. [2] *Hyatt* v. *Adams*, 16 Mich. 180.

500. Liability for ignorance and negligence generally.—A physician, surgeon, or dentist is liable to a patient for injury suffered by him resulting from want of ordinary skill or ordinary attention,[3] as well as for damages arising from negligence in the application of skill.[4] And he is also liable for want of ordinary care in not detecting the nature of a disease or injury[5] as well as for failure to continue attendance as long as the needs of the patient require it;[6] the physician being bound to the use of ordinary care in determining when treatment may be safely and properly discontinued.[7] And a physician is chargeable with knowledge of the probable consequences of an injury, or of negligence in its treatment, or of unskilful treatment.[8] To war-

[3]*Mitchell* v. *Hindman*, 47 Ill. App. 431, Affirmed in 150 Ill. 538, 37 N. E. 916; *McNevins* v. *Lowe*, 40 Ill. 209; *Sims* v. *Parker*, 41 Ill. App. 284; *Hallam* v. *Means*, 82 Ill. 379, 25 Am. Rep. 328; *Ritchey* v. *West*, 23 Ill. 385; *Jackson* v. *Burnham*, 20 Colo. 532, 39 Pac. 577; *Landon* v. *Humphrey*, 9 Conn. 209, 23 Am. Dec. 333; *Long* v. *Morrison*, 14 Ind. 595, 77 Am. Dec. 72; *Bowman* v. *Woods*, 1 G. Greene, 441; *Howard* v. *Grover*, 28 Me. 97, 48 Am. Dec. 478; *Ramsdell* v. *Grady*, 97 Me. 319, 54 Atl. 763; *Dashiell* v. *Griffith*, 84 Md. 363, 35 Atl. 1094; *Harriott* v. *Plimpton*, 166 Mass. 585, 44 N. E. 992; *Hitchcock* v. *Burgett*, 38 Mich. 501; *West* v. *Martin*, 31 Mo. 375, 80 Am. Dec. 107; *Carpenter* v. *McDavitt*, 53 Mo. App. 393; *Carpenter* v. *Blake*, 75 N. Y. 12; *Pike* v. *Honsinger*, 155 N. Y. 201, 63 Am. St. Rep. 655, 49 N. E. 760; *Link* v. *Sheldon*, 136 N. Y. 1, 32 N. E. 696; *McCracken* v. *Smathers*, 122 N. C. 799, 29 S. E. 354; *Geiselman* v. *Scott*, 25 Ohio St. 86; *Gillette* v. *Tucker*, 67 Ohio St. 106, 93 Am. St. Rep. 639, 65 N. E. 865; *Boydston* v. *Giltner*, 3 Or. 119; *Graham* v. *Gautier*, 21 Tex. 111; *Seare* v. *Prentice*, 8 East, 348. And see *Hord* v. *Grimes*, 13 B. Mon. 188.

[4]*Long* v. *Morrison*, 14 Ind. 595, 77 Am. Dec. 72; *Ritchey* v. *West*, 23 Ill. 385; *Murdock* v. *Walker*, 43 Ill. App. 590; *Dashiell* v. *Griffith*, 84 Md. 363, 35 Atl. 1094; *Graves* v. *Santway*, 2 Silv. Sup. Ct. 67, 25 N. Y. S. R. 1022, 6 N. Y. Supp. 892; *McCracken* v. *Smathers*, 122 N. C. 799, 29 S. E. 354; *Boydston* v. *Giltner*, 3 Or. 118; *Seare* v. *Prentice*, 8 East, 348; *Kannen* v. *M'Mullen*, Peake, N. P. Add. Cas. 59.

The rule that any person who is legally responsible for his acts and conduct is liable for all damages suffered by another which are the proximate result of his negligence or want of ordinary care applies most cogently in the case of a person who deals with health and life. *Longan* v. *Weltmer* (Mo.) 64 L. R. A. 969, 79 S. W. 655.

[5]*Fowler* v. *Sergeant*, 1 Grant, Cas. 355; *Harriott* v. *Plimpton*, 166 Mass. 585, 44 N. E. 992; *Logan* v. *Field*, 75 Mo. App. 594; *Crowty* v. *Stewart*, 95 Wis. 490, 70 N. W. 558.

A physician called upon to treat a wound of a patient, who, knowing the danger of infection, negligently advises the patient's wife that the dressing of the wound is not attended with such danger, assumes the obligation of using due care, and is liable for injuries resulting therefrom. *Edwards* v. *Lamb*, 69 N. H. 599, 50 L. R. A. 160, 45 Atl. 480.

[6]*Dale* v. *Donaldson Lumber Co.* 48 Ark. 188, 3 Am. St. Rep. 224, 2 S. W. 703; *Ritchey* v. *West*, 23 Ill. 385; *Barbour* v. *Martin*, 62 Me. 536.

[7]*Ballou* v. *Prescott*, 64 Me. 395; *Dashiell* v. *Griffith*, 84 Md. 363, 35 Atl. 1094; *Becker* v. *Janinski*, 27 Abb. N. C. 45, 15 N. Y. Supp. 675; *Gillette* v. *Tucker*, 67 Ohio St. 106, 93 Am. St. Rep. 639, 65 N. E. 865.

But when a patient goes to the office of a physician from whom he receives proper treatment, and then fails to return for further treatment, in consequence of which he suffers an injury, he is not entitled to maintain an action against the physician for such injury because of his own default and misfeasance. *Dashiell* v. *Griffith*, 84 Md. 363, 35 Atl. 1094; *Tucker* v. *Gillette*, 11 Ohio S. & C. P. Dec. 226.

[8]*Du Bois* v. *Decker*, 130 N. Y. 325, 14

rant a recovery, however, it must appear not only that the physician was negligent or unskilful, but also that the injury resulted from such negligence or unskilfulness,[9] or from the failure of the physicians to give such instructions with reference to the care of the patient as the nature of the case required;[10] and that the result might have been foreseen and avoided by a competent, careful practitioner.[11] And this is the rule without reference to the question by whom the physician was retained.[12] And a physician is not liable for failure to resort to treatment usual and proper in similar cases, where the injury or the condition of the patient was such as to render it improper or unendurable.[13]

And to render a physician liable, the negligence need not be great and gross: the want of ordinary diligence, care, and skill, is sufficient.[14] And a physician or surgeon is not relieved from responsibility for improper advice or service by the fact that it was gratuitous, or that he was not entitled to recover therefor.[15] And the mere fact

L. R. A. 429, 27 Am. St. Rep. 529, 29 N. E. 313; *Gerken* v. *Plimpton*, 62 App. Div. 35, 70 N. Y. Supp. 793.

A physician called upon to attend to a patient's injured arm, who discontinues attendance, and misleads the patient as to the condition of the arm, so that she fails to employ or call in the aid of another physician or surgeon, is responsible for injury resulting from such failure. *Carpenter* v. *Blake*, 75 N. Y. 12.

[9]*Ewing* v. *Goode*, 78 Fed. 442; *Heintz* v. *Cooper* (Cal.) 47 Pac. 360; *Burnham* v. *Jackson*, 1 Colo. App. 237, 28 Pac. 250; *Chase* v. *Nelson*, 39 Ill. App. 58; *Kendall* v. *Brown*, 74 Ill. 232; *Pettigrew* v. *Lewis*, 46 Kan. 78, 26 Pac. 458; *Feeney* v. *Spalding*, 89 Me. 111, 35 Atl. 1027; *Patten* v. *Wiggin*, 51 Me. 594, 81 Am. Dec. 593; *State use of Janney* v. *Housekeeper*, 70 Md. 162, 2 L. R. A. 587, 14 Am. St. Rep. 340, 16 Atl. 382; *Sanderson* v. *Holland*, 39 Mo. App. 233; *Link* v. *Sheldon*, 136 N. Y. 1, 32 N. E. 696; *Craig* v. *Chambers*, 17 Ohio St. 253; *Wohlert* v. *Seibert*, 23 Pa. Super. Ct. 213; *Gores* v. *Graff*, 77 Wis. 174, 46 N. W. 48; *Rich* v. *Pierpont*, 3 Fost. & F. 35; *McQuay* v. *Eastwood*, 12 Ont. Rep. 402; *James* v. *Crockett*, 34 N. B. 540.

And the wrongful act, neglect, or default of a physician causing the death of a patient, to warrant a recovery under a statute giving a right of action for death caused by the wrongful act, neglect, or default, must have been the direct cause of death, and such an act as would be likely to produce death: it is not sufficient that it contributed to the death. *Chase* v. *Nelson*, 39 Ill. App. 53.

[10]*Feeney* v. *Spalding*, 89 Me. 111, 35 Atl. 1027.

But a physician is not absolved from liability for failure to exercise proper skill in a particular case by the fact that the result is as good as is usually obtained in like cases. *Burk* v. *Foster*, 24 Ky. L. Rep. 791, 59 L. R. A. 277, 69 S. W. 1096.

[11]*Burnham* v. *Jackson*, 1 Colo. App. 237, 28 Pac. 250; *Langford* v. *Jones*, 18 Or. 307, 22 Pac. 1064; *Bogle* v. *Winslow*, 5 Phila. 136.

[12]*Pippin* v. *Sheppard*, 11 Price, 127; *Gladwell* v. *Steggall*, 5 Bing. N. C. 733, 8 Scott, 60, 8 L. J. C. P. N. S. 361, 3 Jur. 535.

[13]*Hallam* v. *Means*, 82 Ill. 379, 25 Am. Rep. 328.

[14]*Landon* v. *Humphrey*, 9 Conn. 209, 23 Am. Dec. 333.

[15]*Carpenter* v. *Blake*, 75 N. Y. 12; *Conner* v. *Winton*, 8 Ind. 315, 65 Am. Dec. 761.

The violation of the duty of a physician to exercise proper skill and care in the practice of his profession is a wrong which entitles the person suffering from it to legal redress; and this was the case when the only compensation he could receive for his services

that a physician is liable to a penalty for practising without a license does not prevent a recovery against him for malpractice.[16]

501. Errors of judgment.—Where a physician exercises ordinary care and skill, keeping within recognized and approved methods, he is not liable for the result of a mere mistake of judgment.[17] There is no responsibility for error of judgment unless it is so gross as to be inconsistent with that degree of skill which it is the duty of every physician to possess.[18] Whether errors of judgment will or will not make a physician liable in a given case depends upon whether he has exercised such skill and diligence as are ordinarily exercised in his profession, and not merely whether he was ordinarily skilful.[19] But

was the honorarium paid at the option of the patient. *Styles* v. *Tyler*, 64 Conn. 432, 30 Atl. 165.

But hospital surgeons giving their services gratuitously cannot be held liable for the unskilful administration of a hot bath to a patient by nurses, which they ordered, but which was given in their absence. *Perionowsky* v. *Freeman*, 4 Fost. & F. 977.

[16]*Musser* v. *Chase*, 29 Ohio St. 577.

One who assumes to act as a surgeon or apothecary is liable for failure to exercise the care and skill which it is the duty of a surgeon or apothecary to exercise, though he was not in fact one. *Ruddock* v. *Lowe*, 4 Fost. & F. 519; *Jones* v. *Fay*, 4 Fost. & F. 525.

[17]*Wells* v. *World's Dispensary Medical Asso.* 27 N. Y. Week. Dig. 73, 9 N. Y. S. R. 452; *Pike* v. *Honsinger*, 155 N. Y. 201, 63 Am. St. Rep. 655, 49 N. E. 760; *Gerken* v. *Plimpton*, 62 App. Div. 35, 70 N. Y. Supp. 793; *Jackson* v. *Burnham*, 20 Colo. 532, 39 Pac. 577; *Fisher* v. *Niccolls*, 2 Ill. App. 484; *Sims* v. *Parker*, 41 Ill. App. 284; *Havens* v. *Hardesty*, 18 Ohio C. C. 891; *Langford* v. *Jones*, 18 Or. 307, 22 Pac. 1064; *Heath* v. *Glisan*, 3 Or. 64; *Williams* v. *Poppleton*, 3 Or. 139; *Williams* v. *Le-Bar*, 141 Pa. 149, 21 Atl. 525; *Wohlert* v. *Seibert*, 23 Pa. Super. Ct. 213; *English* v. *Free*, 205 Pa. 624, 55 Atl. 777; *Barker* v. *Lane*, 23 R. I. 224, 49 Atl. 963; *Wilkins* v. *Ferrell*, 10 Tex. Civ. App. 231, 30 S. W. 450. And see *Smith* v. *Dumont*, 25 N. Y. S. R. 382, 6 N. Y. Supp. 242.

Where there seems to be a want of a definite and prescribed mode or system of treating an injury, and there are differences among practical and skilled surgeons with reference to it, a surgeon may exercise his own best judgment, employing the methods his experience has shown him to be the best; and in such case a mere error of judgment as to it will not render him liable. *Vanhooser* v. *Berghoff*, 90 Mo. 487, 3 S. W. 72.

[18]*West* v. *Martin*, 31 Mo. 375, 80 Am. Dec. 107; *Jackson* v. *Burnham*, 20 Colo. 532, 39 Pac. 577; *McKee* v. *Allen*, 94 Ill. App. 147; *Tefft* v. *Wilcox*, 6 Kan. 46; *Becker* v. *Janinski*, 27 Abb. N. C. 45, 15 N. Y. Supp. 675; *Langford* v. *Jones*, 18 Or. 307, 22 Pac. 1064.

A dentist or physician using chloroform as an anesthetic is not answerable for negligence because of results arising from the peculiar condition or temperament of the patient, of which he had no knowledge. *Bogle* v. *Winslow*, 5 Phila. 136.

And a surgeon cannot be held liable for not discovering a fracture of a bone of the patient's arm where, at the time of the examination, the arm was so swollen that the extent of the injury could not be discovered by a careful and skilful examination. *Gedney* v. *Kingsley*, 41 N. Y. S. R. 794, 16 N. Y. Supp. 792; *Becknell* v. *Hosier*, 10 Ind. App. 5, 37 N. E. 580.

[19]*Jackson* v. *Burnham*, 20 Colo. 532, 39 Pac. 577; *West* v. *Martin*, 31 Mo. 375, 80 Am. Dec. 107; *Burnham* v. *Jackson*, 1 Colo. App. 237, 28 Pac. 250.

To show a want of skill upon the part of a physician, it is never sufficient to prove that he has not proceeded in that mode, or used those measures, which in the opinion of other medical men the case required; it is necessary to go further, and show that he had not the requisite qualifications, or did not use them. *Cater* v. *Fernald*, McClelland, Civil Malpractice, 19.

the rule that error of judgment is not malpractice has no application in the case of a person who knows nothing about anatomy, surgery, or physics, since he can have no judgment in the matter.[20] An error of judgment in a science on the part of a man unskilled in that science who holds himself out as a specialist therein is malpractice, rendering him liable for all damage resulting therefrom;[21] and so is error of judgment which is so gross as to be inconsistent with the use of that degree of skill which it is the duty of every physician or surgeon to bring to the treatment of a case.[22]

502. Acts of others.—A physician is not liable for the results of carelessness of nurses unless his own carelessness contributed to the injury, where he exercised no control over them;[23] nor is he liable for mistakes of druggists over whom he had no control, in filling his prescriptions.[24] And a physician cannot be held responsible for injuries caused by improper treatment by one called in or sent by him to take his place.[25] But failure to give

[20]*Courtney* v. *Henderson* (N. Y. Marine Ct.) McClelland, Civil Malpractice, 273.

[21]*Courtney* v. *Henderson* (N. Y. Marine Ct.) McClelland, Civil Malpractice, 273; *Pike* v. *Honsinger*, 155 N. Y. 201, 63 Am. St. Rep. 655, 49 N. E. 760; *Carpenter* v. *Blake*, 50 N. Y. 696, Affirming 60 Barb. 488; *Nelson* v. *Harrington*, 72 Wis. 591, 1 L. R. A. 719, 7 Am. St. Rep. 900, 40 N. W. 228; *Jones* v. *Fay*, 4 Fost. & F. 525.

And where a physician and surgeon possessing special learning or knowledge with reference to his profession, with intent to deceive, made false and fraudulent representations to a person ignorant upon the subject, that certain injuries from which he was suffering were curable, and that at an institution in which he was interested they could and would cure him for a designated amount of money, and injury followed from reliance upon such opinion, an action for deceit will lie. *Hedin* v. *Minneapolis Medical & Surgical Inst.* 62 Minn. 146, 35 L. R. A. 417, 54 Am. St. Rep. 628, 64 N. W. 158.

But a physician is not chargeable with ignorance of a case where he prescribed for it properly and correctly. *Fowler* v. *Sergeant*, 1 Grant, Cas. 355.

[22]*West* v. *Martin*, 31 Mo. 375, 80 Am. Dec. 107; *Jackson* v. *Burnham*, 20 Colo. 532, 39 Pac. 577; *Manser* v. *Collins* (Kan.) 76 Pac. 851.

Where there could be but one course of treatment of the patient by a physician which would be suggested by a physician of ordinary skill, the adoption of any other course would be evidence of a want of ordinary knowledge or skill, or care and attention, for which he might be held liable. *Patten* v. *Wiggin*, 51 Me. 594, 81 Am. Dec. 593.

And the mere fact that a physician acted in good faith, and was not guilty of murder in administering poisonous medicine to a slave, is not alone sufficient to relieve him from liability for such act done without the consent of the master and owner. *Hord* v. *Grimes*, 13 B. Mon. 188.

[23]*Sanderson* v. *Holland*, 39 Mo. App. 233; *Baker* v. *Wentworth*, 155 Mass. 338, 29 N. E. 589; *Perionowsky* v. *Freeman*, 4 Fost. & F. 977.

[24]*Stretton* v. *Holmes*, 19 Ont. Rep. 286; *Jeannotte* v. *Couillard*, Rap. Jud. Quebec, 3 B. R. 461.

But the fact that a druggist filling a prescription was negligent is no defense to an action for malpractice against the physician who wrote it, for negligently making a mistake in doing so. *Murdock* v. *Walker*, 43 Ill. App. 590.

And where a physician prescribes poison by mistake, and the druggist filling the prescription substitutes another poison, either of which would have caused death, and death results, the physician cannot escape liability, his error being the primary cause of the accident. *Jeannotte* v. *Couillard*, Rap. Jud. Quebec, 3 B. R. 461.

[25]*Keller* v. *Lewis*, 65 Ark. 578, 47

proper directions to attendants is culpable negligence, rendering a physician liable for an injury resulting therefrom.[26] And a physician is liable for his own negligent acts though the acts of others may have aggravated the injury.[27] And partners in the practice of medicine are responsible for the negligence of each other within the scope of their partnership business.[28] And a surgeon is answerable for the want of proper skill of his apprentice.[29]

503. Effect of complication with other causes.—The fact that damages suffered by a patient were in part due to his own health or physical condition does not prevent a recovery against his attending physician for malpractice which contributed to his injuries;[30] and in assessing the damages in such a case the jury must endeavor to distinguish between the effects of the different causes, and award damages only for the injuries attributable to the malpractice.[31] And a

S. W. 755; *Hitchcock* v. *Burgett*, 38 Mich. 501; *Myers* v. *Holborn*, 58 N. J. L. 193, 30 L. R. A. 345, 55 Am. St. Rep. 606, 33 Atl. 389. And see *Link* v. *Sheldon*, 136 N. Y. 1, 32 N. E. 696.

And a mere omission of an attending physician to use ordinary skill in diagnosing a case of smallpox, and his reporting it to the health department as such, will not render him liable for the removal of the patient to the pesthouse, if it is the duty of the health inspector to form an independent judgment upon the case, and the removal only takes place after he has done so. *Brown* v. *Purdy*, 22 Jones & S. 109.

[26]*Carpenter* v. *Blake*, 60 Barb. 488; *Beck* v. *German Klinik*, 78 Iowa, 696, 7 L. R. A. 566, 43 N. W. 617.

[27]*Hathorn* v. *Richmond*, 48 Vt. 559; *Wilmot* v. *Howard*, 39 Vt. 449, 94 Am. Dec. 338; *Carpenter* v. *Blake*, 75 N. Y. 12.

He is liable at least for such injury as occurred from his wrongful act before it became the duty of the second physician to intervene and relieve the patient from the consequences thereof. *Hathorn* v. *Richmond*, 48 Vt. 557.

[28]*Hyrne* v. *Erwin*, 23 S. C. 226, 55 Am. Rep. 15; *Hess* v. *Lowrey*, 122 Ind. 225, 7 L. R. A. 90, 17 Am. St. Rep. 355, 23 N. E. 156; *Whittaker* v. *Collins*, 34 Minn. 299, 57 Am. Rep. 55, 25 N. W. 632.

And in an action against a firm of physicians for breach by one of them of their contract to treat a patient properly, all must be joined as defendants. *Whittaker* v. *Collins*, 34 Minn. 299, 57 Am. Rep. 55, 25 N. W. 632.

But a joint liability upon the part of two persons can only exist when the damage results from the same act; and where a physician inadvertently writes bisulphate of morphin instead of bisulphate of quinin in a prescription, and the druggist filling the prescription substitutes sulphate of morphin, and the death of a child results, they are not jointly liable. *Jeannotte* v. *Couillard*, Rap. Jud. Quebec, 3 B. R. 461.

[29]*Hancke* v. *Hooper*, 7 Car. & P. 81; *Tish* v. *Welker*, 5 Ohio S. & C. P. Dec. 725.

But before a dentist can be held liable for injury to a person from the improper extraction of his tooth by another, it must appear that such other was the employee of the dentist, over whose acts in the premises he had dominion and control; or that the dentist being called upon to do the work directed it to be done by such other person, and under circumstances justifying the belief that such person was aiding him; or that he held out to the public that the other dentists in his office were his assistants, and that the person injured submitted to such other, supposing the dentist sought to be held responsible to be the head of the business. *Wilkins* v. *Farrell*, 10 Tex. Civ. App. 231, 30 S. W. 450.

[30]*Gates* v. *Fleischer*, 67 Wis. 504, 30 N. W. 674.

[31]*Ibid.*

The condition a patient was in when a physician was called affects the question of damages, but does not control the right of action for malpractice; that right depends upon the continuing or

physician can only be held liable for injurious results following his treatment because of the condition of the patient, when the condition was such that ordinary professional intelligence and skill should have shown him that such results would follow.[32]

504. Malpractice of physician making official certificates.—Physicians making certificates as to the mental or physical condition of persons, under statutory provisions authorizing the admission or confinement of such persons in asylums, hospitals, or other public institutions, are not clothed with judicial immunity, but are chargeable with that negligence which is chargeable to other experts who do not use the care and skill which their profession *per se* implies that they will bring to their professional work.[33] And a physician who signed a lunacy certificate, under which another is confined as a lunatic, without due care and proper inquiry, is none the less liable in trespass for the negligence of his act because he acted honestly.[34] And maliciously making certificates authorized by law, under which, with the approval of a judge, a person is confined in an insane asylum, renders the physician making them liable to an action for false imprisonment, where such certificates were false and fraudulent.[35] Each of two physicians required by law to examine and certify as to the sanity of persons, however, is liable only for his own act, and for the correctness of the certificate in the terms in which he gave it.[36] And physicians making a false certificate of insanity are not liable, where they made a careful examination, and were not negligent; and a

intervening conditions which are due to a neglect of duty on the part of the physician after he has undertaken to exercise his skill. *Mullin* v. *Flanders*, 73 Vt. 95, 50 Atl. 813.

[32]*Wells* v. *World's Dispensary Medical Asso.* 27 N. Y. Week. Dig. 73, 9 N. Y. S. R. 452.

[33]*Ayers* v. *Russell*, 50 Hun, 282, 3 N. Y. Supp. 338; *Pennell* v. *Cummings*, 75 Me. 163; *Hall* v. *Semple*, 3 Fost. & F. 337.

[34]*Hall* v. *Semple*, 3 Fost. & F. 337.

In the case last above cited, however, it was held that a physician who has merely signed a certificate, under a lunacy act providing that no person shall be received in certain licensed houses for the confinement of the insane without a medical certificate, is not liable as in trespass to a lunatic who was confined pursuant thereto, where he did nothing more toward causing such confinement.

[35]*Hurlehy* v. *Martine*, 31 N. Y. S. R. 471, 10 N. Y. Supp. 92.

And this is the rule though the statute does not say that the certificate authorizes or directs the confinement, but only that it forbids the confinement without such certificates; and an action therefor is barred by the statute of limitations for false imprisonment. *Ibid.*

But the fact that one physician consulted another, who had joined him in signing a medical certificate pursuant to a statutory provision that no person shall be received into certain licensed houses for the insane without a medical certificate signed by two physicians, and gave him an impression that the certificate should be signed, does not render the former liable to the alleged lunatic who was confined pursuant to such certificate. *Hall* v. *Semple*, 3 Fost. & F. 337.

[36]*Pennell* v. *Cummings*, 75 Me. 163.

mistake as to fact raises no presumption of negligence.[37] And it has been held that, in the absence of statutory provision therefor, there can be no civil action for damages against a physician, based upon the insufficiency of the methods which he pursued in reaching and certifying a conclusion required by law to be based on due inquiry and proper examination.[38]

505. Liability of master for malpractice of physician employed for servants.—When a master sees fit to furnish medical attendance to his servants, the relation of master and servant does not exist between him and the physician or surgeon employed by him to render services to his employees, so as to render the master liable for malpractice of such physician or surgeon;[39] though negligence in employing a surgeon by an employer for an employee renders him liable for damages sustained through the surgeon's inefficiency.[40] And a statutory pro-

[37] *Williams* v. *LeBar*, 141 Pa. 149, 21 Atl. 525.

[38] *Pennell* v. *Cummings*, 75 Me. 163.

Within this rule, if physicians appointed under an act providing for the commitment of persons to a hospital on the certificate of two physicians, based on due inquiry and personal examination as to such person's sanity, have not made the inquiry and examination which the statute requires, or if their evidence and certificate in any respect of form or substance are not sufficient to justify a commitment, the municipal officers should not commit; and if they do, they are responsible therefor, and not the physician. *Ibid.*

And where, in an action against physicians issuing a certificate of insanity, it is claimed that the certificate was not only false, but false through malice or negligence, it is open to the defendants to prove precisely what were the circumstances under which they acted, what inquiry they made, and what the information was on which they proceeded. *Ibid.*

[39] *Quinn* v. *Kansas City, M. & B. R. Co.* 94 Tenn. 713, 28 L. R. A. 552, 45 Am. St. Rep. 767, 30 S. W. 1036; *South Florida R. Co.* v. *Price*, 32 Fla. 46, 13 So. 638; *York* v. *Chicago, M. & St. P. R. Co.* 98 Iowa, 544, 67 N. W. 574; *Atchison, T. & S. F. R. Co.* v. *Zeiler*, 54 Kan. 340, 38 Pac. 282; *Clark* v. *Missouri P. R. Co.* 48 Kan. 654, 29 Pac. 1138; *Eighmy* v. *Union P. R. Co.* 93 Iowa, 538, 27 L. R. A. 296, 61 N. W. 1056; *Pearl* v. *West End Street R. Co.* 176 Mass. 177, 49 L. R. A. 826, 79 Am. St. Rep. 302, 57 N. E. 339; *O'Brien* v. *Cunard S. S. Co.* 154 Mass. 272, 13 L. R. A. 329, 28 N. E. 266; *Chicago, B. & Q. R. Co.* v. *Howard*, 45 Neb. 570, 63 N. W. 872; *Haggerty* v. *St. Louis, K. & N. W. R. Co.* 100 Mo. App. 425, 74 S. W. 456; *Richardson* v. *Carbon Hill Coal Co.* 10 Wash. 648, 39 Pac. 95; *Galveston, H. & S. A. R. Co.* v. *Scott*, 18 Tex. Civ. App. 321, 44 S. W. 589; *Southern P. Co.* v. *Mauldin*, 19 Tex. Civ. App. 166, 46 S. W. 650; *Union P. R. Co.* v. *Artist*, 23 L. R. A. 581, 9 C. C. A. 14, 19 U. S. App. 612, 60 Fed. 365.

Liability of a railroad company for failure to provide for an injured brakeman is not incurred where the best medical treatment that could be obtained at the little town where he was injured was procured, and he was removed as soon as possible, with his intelligent and conscious consent, without any objection of the physicians who had attended him, to another town where a place was provided for him, and competent surgeons were awaiting him; but he insisted on being taken still farther to the town where he lived, and he died soon after reaching home from loss of blood. *Ohio & M. R. Co.* v. *Early*, 141 Ind. 73, 28 L. R. A. 546, 40 N. E. 257.

[40] *Richardson* v. *Carbon Hill Coal Co.* 6 Wash. 52, 20 L. R. A. 338, 32 Pac. 1012; *Laubheim* v. *De Koninglyke Nederlandsche S. B. Maatschappy*, 107 N. Y. 227, 1 Am. St. Rep. 815, 13 N. E. 781.

But to hold an employer liable for the incompetence of a surgeon employed by

vision making an employer liable for the death of a person, caused by his negligence, or that of his servants or agents, refers to servants or agents engaged in some way in prosecuting his general business, and does not cover a case of death caused by negligence of the local surgeon in a pest camp maintained by him.[41] These rules apply with equal force when an employer forms a relief department among his employees, employing a physician for their benefit;[42] and an employer is not liable for the malpractice of physicians employed in hospitals maintained by him gratuitously, or by contributions from the employees for their benefit, when due care was used in their selection.[43] But in such case if the employer obligates himself in the contract of employment to furnish a competent and skilful physician, he is liable to employees injured by negligent treatment.[44]

So, where an employer exacts deductions from the wages of all employees alike, and binds himself to furnish medical treatment with the funds thus secured to such of the employees as should get hurt or become sick while working for the employer, and the moneys paid by the employees and reserved by the employer yield a profit above all expenses, which profit is secured by the employer, and not held as a trust fund for the employees, the law will imply an undertaking to give proper treatment, and the employer will be held to be responsible to an employee for improper treatment.[45] And an employer main-

him for the benefit of his employees, there must be evidence of want of reasonable care in his selection, or actual notice of unfitness, or performance of such acts of negligence as would have affected the master with notice had he exercised due oversight and supervision. *Big Stone Gap Iron Co.* v. *Ketron* (Va.) 9 Va. Law Reg. 906, 45 S. E. 740.

And the conscious and deliberate choice of an injured employee, while in possession of his mental faculties, of the time when, place where, and person by whom, he will be treated, relieves his employer of any liability for failure to provide for other treatment. *Ohio & M. R. Co.* v. *Early*, 141 Ind. 73, 28 L. R. A. 546, 40 N. E. 257.

[41] *Missouri, K. & T. R. Co.* v. *Freeman* (Tex.) 79 S. W. 9.

[42] *Haggerty* v. *St. Louis, K. & N. W. R. Co.* 100 Mo. App. 424, 74 S. W. 456.

But a relief department of a railroad company, supported by sums of money deducted from the wages of the employees, which was to be enjoyed by them if they suffered from sickness or accident, on condition of relieving the company from liability for negligence in causing the injury, is not a charity which will relieve the department from liability for negligence in selecting a physician to treat an injured member of the department. *Ibid.*

[43] *Union P. R. Co.* v. *Artist*, 23 L. R. A. 581, 9 C. C. A. 14, 19 U. S. App. 612, 60 Fed. 365; *Eighmy* v. *Union P. R. Co.* 93 Iowa, 538, 27 L. R. A. 296, 61 N. W. 1056; *Poling* v. *San Antonio & A. P. R. Co.* (Tex. Civ. App.) 75 S. W. 69.

[44] *Haggerty* v. *St. Louis, K. & N. W. R. Co.* 100 Mo. App. 424, 74 S. W. 456; *Sawdey* v. *Spokane Falls & N. R. Co.* 30 Wash. 349, 94 Am. St. Rep. 880, 70 Pac. 972.

[45] *Texas & P. Coal Co.* v. *Connaughten*, 20 Tex. Civ. App. 642, 50 S. W. 173.

The question whether an employer who deducted sums of money from its employee's wages for the maintenance of a hospital for the treatment of injured and sick employees undertook to treat an employee gratuitously, and was liable only for failure to use ordinary care in selecting the surgeon, or contracted to properly treat him in con-

taining a hospital for treatment of his employees, with moneys deducted from their salaries, who takes an injured employee to the hospital, and enters upon his treatment without informing him that his contract is limited, or claiming to be treating him gratuitously, is estopped to claim that the treatment was gratuitous, in order to escape liability for malpractice of the physician employed.[46]

506. Liability of carrier for malpractice of physician employed for passengers.—Railroad companies and other carriers are under no obligation to furnish medical aid to injured passengers, and cannot be held liable on a contract for such aid unless it is duly and properly authorized.[47] Where a carrier, under requirement of law or by choice, however, provides a surgeon for the benefit of its passengers, its duty to the passengers is to select a reasonably competent man for that office; and it is liable for neglect or improper performance of that duty.[48] But in performing such duty it is bound only to the exercise of reasonable care and diligence.[49] And it is not compelled to select and employ the highest skill and longest experience.[50] And when such selection is made, and the physician has been placed in charge, or arrangements have been made through which his services may be secured by the passengers, the duty and liability of the carrier are ended.[51] After that, if a physician causes an injury by negligence or want of skill, he himself, and not the carrier, is responsible.[52]

507. Liability of charitable institutions and municipalities for malpractice.—A public charitable institution such as a hospital deriving its funds from a public or private charity, and conducting its affairs for the public purpose of administering to the sick without compensation, is under duty to persons admitted to it to use due and reasonable care in the selection of proper agents and physicians.[53] But when this

sideration of the moneys deducted from his pay, is one for the jury in an action for improper treatment, where the employee was injured after quitting work, on his way home from his place of employment. *Sawdey* v. *Spokane Falls & N. R. Co.* 30 Wash. 348, 94 Am. St. Rep. 880, 70 Pac. 972.

[46]*Ibid.*

[47]*Union P. R. Co.* v. *Beatty*, 35 Kan. 265, 57 Am. Rep. 160, 10 Pac. 845.

[48]*Laubheim* v. *DeKoninglyke Nederlandsche S. B. Maatschappy*, 107 N. Y. 228, 1 Am. St. Rep. 815, 13 N. E. 781.

[49]*Ibid.*

[50]*Ibid.*

Testimony as to confusion in the surgery of a steamship, and disorder in the arrangement of medicine, existing after the vessel put to sea, and after the medicines were placed in charge of the physician, is not evidence of a neglect of duty upon the part of the shipowner, under a statutory requirement to employ a duly qualified physician, and provide a supply of medicines properly packed and labeled. *Allan* v. *State S. S. Co.* 132 N. Y. 91, 15 L. R. A. 166, 28 Am. St. Rep. 556, 30 N. E. 482.

[51]*Secord* v. *St. Paul, M. & M. R. Co.* 5 McCrary, 515, 18 Fed. 221; *Allan* v. *State S. S. Co.* 132 N. Y. 91, 15 L. R. A. 166, 28 Am. St. Rep. 556, 30 N. E. 482.

[52]*Ibid.*

[53]*McDonald* v. *Massachusetts General Hospital*, 120 Mass. 432, 21 Am. Rep. 529; *Wilson* v. *Brooklyn Homeopathic Hospital*, 89 N. Y. Supp. 619.

is done, its duty is fulfilled; and it cannot be held liable for the neglect of such agents and physicians to perform their duty, or for its improper performance,[54] or for the improper performance of duties by one who assumes to act without authority.[55] And this rule is not affected by the fact that the institution through its agents is itself to determine who are to be the immediate objects of the charity,[56] or by the fact that its funds are supplemented by such amounts as it may receive from those who are able to pay for the accommodation they receive.[57] Nor can a hospital be held liable to a patient for negligence of a surgeon employed by the superintendent, where he had no authority to contract to furnish surgical services.[58] Likewise, a municipality employing medical aid for its indigent poor, or other persons for whose care it is responsible, is not liable for negligence or malpractice; it is only liable for negligence in the selection of the physician.[59]

508. Effect of contributory negligence.—To entitle a patient to recover of a physician for injuries caused by want of proper care or skill, there must have been no negligence on the part of the patient contributing to the result.[60] And if the parents or persons in charge of a patient attempt to nurse him, and do not follow directions, and thus contribute to the injury, no recovery can be had against the physician.[61] But an injured patient is not bound to seek aid from other physicians to mitigate the consequences of the mistakes of the attending physician.[62] And the general rule is that a patient may recover

[54]*McDonald* v. *Massachusetts General Hospital*, 120 Mass. 432, 21 Am. Rep. 529; *Pepke* v. *Grace Hospital*, 130 Mich. 493, 90 N. W. 278; *Wilson* v. *Brooklyn Homeopathic Hospital*, 89 N. Y. Supp. 618.

[55]*McDonald* v. *Massachusetts General Hospital*, 120 Mass. 432, 21 Am. Rep. 529.

[56]*Ibid.*

[57]*Ibid.*

[58]*Wilson* v. *Brooklyn Homeopathic Hospital*, 89 N. Y. Supp. 619.

[59]*Summers* v. *Daviess County*, 103 Ind. 262, 53 Am. Rep. 512, 2 N. E. 725; *Sherbourne* v. *Yuba County*, 21 Cal. 113, 61 Am. Dec. 151.

[60]*Hibbard* v. *Thompson*, 109 Mass. 286; *Hitchcock* v. *Burgett*, 38 Mich. 501; *Chamberlain* v. *Porter*, 9 Minn. 260, Gil. 244; *Link* v. *Sheldon*, 45 N. Y. S. R. 165, 18 N. Y. Supp. 815; *Geiselman* v. *Scott*, 25 Ohio St. 86; *Robison* v. *Gary*, 28 Ohio St. 241; *Reber* v. *Herring*, 115 Pa. 599, 8 Atl. 830; *Richards* v. *Willard*, 176 Pa. 181, 35 Atl. 114; *Gramm* v. *Boerner*, 56 Ind. 497; *Scudder* v. *Crossan*, 43 Ind. 343; *Secord* v. *St. Paul, M. & M. R. Co.* 5 McCrary, 515, 18 Fed. 221.

"Directly contribute" and "proximately contribute" are synonymous within this rule, though "proximately" is the better word. *Davis* v. *Spicer*, 27 Mo. App. 279.

[61]*Potter* v. *Warner*, 91 Pa. 362, 36 Am. Rep. 668; *Sanderson* v. *Holland*, 39 Mo. App. 233; *Link* v. *Sheldon*, 45 N. Y. S. R. 165, 18 N. Y. Supp. 815.

But a recovery against a surgeon for malpractice in improperly caring for an injured arm will not be prevented on the ground of the plaintiff's contributory negligence, where, if there was any negligence on the part of the plaintiff, it was the result of ignorance as to how the limb should be treated, which ignorance it was the duty of the physician to remove. *Carpenter* v. *Blake*, 60 Barb. 488.

[62]*Chamberlin* v. *Morgan*, 68 Pa. 168;

damages notwithstanding his own negligence, where the negligence of the physician was the sole cause of the injury,[63] even though the disease or injury was aggravated by the improper treatment of those in charge of the patient.[64] If the negligence of the patient can be separated from that of the physician, the patient may recover for such separate injury as proceeded solely from the distinct negligence of the physician;[65] though in Indiana, and perhaps some of the other states, the rule is that a patient cannot recover from his physician for an injury to which he contributed in any degree, either by his own negligence or by disregarding directions of the physician.[66] Permitting treatment by a physician after being informed or becoming fully aware of his want of skill is contributory negligence, which will bar an action for resulting injuries;[67] and demanding particular action without asking advice as to its propriety exonerates the physician from liability for injurious results, when the impropriety of such action was not apparent.[68] But negligence cannot be properly imputed to the father of a sick child because he employed a clairvoyant physician to treat him, with full knowledge of his methods of diagnosis and prescription.[69]

509. Effect of failure to conform to directions.—It is the duty of the patient to conform to necessary prescriptions, directions, and treatment of his physician if they are such as a physician or surgeon of

Schoonover v. *Holden* (Iowa) 87 N. W. 737.

And a person with a broken limb is not required to submit to have it rebroken, in order to relieve her physician from liability for lack of ordinary care and skill in setting it, where the operation would be attended with great pain, and her age and physical condition were such that it might prove fatal. *Morris* v. *Despain*, 104 Ill. App. 452.

[63]*Hibbard* v. *Thompson*, 109 Mass. 289; *Sanderson* v. *Holland*, 39 Mo. App. 233; *West* v. *Martin*, 31 Mo. 375, 80 Am. Dec. 107.

[64]*Wilmot* v. *Howard*, 39 Vt. 447, 94 Am. Dec. 338.

[65]*Hibbard* v. *Thompson*, 109 Mass. 286.

But where a man is negligently treated for an injury in a hospital, and, before recovery, leaves and suffers injury from his own negligence, an attempt to set up a dividing line between the consequences of the negligence of the physician treating him in the hospital, and his own subsequent negligence, so as to permit a recovery for damages for the negligence of the physician, will not be made; since it cannot be known what would have been the result of the physician's treatment had he remained at the hospital. *Richards* v. *Willard*, 176 Pa. 181, 35 Atl. 114.

[66]*Jones* v. *Angell*, 95 Ind. 376; *Young* v. *Mason*, 8 Ind. App. 264, 35 N. E. 521.

[67]*Lorenz* v. *Jackson*, 88 Hun, 200, 34 N. Y. Supp. 652.

[68]*Hancke* v. *Hooper*, 7 Car. & P. 81.

While it is the duty of surgeon when called upon to perform some surgical operation to advise against it if in his opinion it is unnecessary or will result injuriously, if he gives such advice, and the patient still insists upon the performance of the operation, and the surgeon performs it in compliance with his demands, he cannot be held responsible to the patient in damages. *Gramm* v. *Boener*, 56 Ind. 497.

[69]*Nelson* v. *Harrington*, 72 Wis. 591, 1 L. R. A. 719, 7 Am. St. Rep. 900, 40 N. W. 228.

ordinary care would adopt and sanction; and if he will not, or under pressure of pain cannot do so, the physician is not responsible for resulting injury.[70] And this is the rule where his disobedience proximately contributed to the injury, though it appears that the physician's negligence or want of skill also contributed to it.[71] And the rule is the same where the negligence or refusal to obey orders was that of persons in charge of the patient.[72] But before a physician can shift responsibility from himself to the patient on the ground that the latter did not submit to the course recommended, it must be shown that the prescriptions were proper and adapted to the end in view; and it is incumbent upon the surgeon to satisfy the jury on this point.[73] While a patient has a right to rely upon the instructions and directions of his physician, and incurs no liability by so doing,[74] he is not required to submit blindly to professional advice: he is entitled and bound to exercise reasonable judgment; and if his conduct was that of a reasonably prudent man, he cannot be charged with negligence for refusing to submit.[75] Failure to obey instructions, however, which contributes to the aggravation of the patient's ailment, only tends to mitigate damages; it does not relieve the physician from the consequences of professional neglect or unskilful treatment.[76]

[70] *McCandless* v. *McWha*, 22 Pa. 261; *Haire* v. *Reese*, 7 Phila. 138; *Potter* v. *Warner*, 91 Pa. 362, 36 Am. Rep. 668; *Haering* v. *Spicer*, 92 Ill. App. 449; *Littlejohn* v. *Arbogast*, 95 Ill. App. 605; *Jones* v. *Angell*, 95 Ind. 376; *Swanson* v. *French*, 92 Iowa, 695, 61 N. W. 407; *Whitesell* v. *Hill*, 101 Iowa, 629, 37 L. R. A. 830, 70 N. W. 750, 66 N. W. 894; *Dashiell* v. *Griffith*, 84 Md. 365, 35 Atl. 1094; *Becker* v. *Janinski*, 27 Abb. N. C. 45, 15 N. Y. Supp. 675; *Geiselman* v. *Scott*, 25 Ohio St. 86; *Tish* v. *Welker*, 5 Ohio S. & C. P. Dec. 725; *Lawson* v. *Conaway*, 37 W. Va. 159, 18 L. R. A. 627, 38 Am. St. Rep. 17, 16 S. E. 564.

And if a physician in his treatment of a patient exercised reasonable care, skill, and diligence, and because of the illness of his father turned the patient over to another competent physician for further treatment, and the patient refused to go to the other physician, the liability of the physician ceases, and the plaintiff assumes herself the consequences of any injury resulting from the neglect of further treatment. *Dashiell* v. *Griffith*, 84 Md. 363, 35 Atl. 1094.

[71] *Geiselman* v. *Scott*, 25 Ohio St. 86; *Young* v. *Mason*, 8 Ind. App. 264, 35 N. E. 521; *Becker* v. *Janinski*, 27 Abb. N. C. 45, 15 N. Y. Supp. 675.

But the information which a surgeon may give to a patient concerning the nature of his malady is a circumstance which should be considered by the jury in determining the question whether or not the patient, in disobeying the instructions of the surgeon, was guilty of contributory negligence. *Geiselman* v. *Scott*, 25 Ohio St. 86.

[72] *Potter* v. *Warner*, 91 Pa. 362, 36 Am. Rep. 668.

[73] *McCandless* v. *McWha*, 22 Pa. 261; *DuBois* v. *Decker*, 130 N. Y. 325, 14 L. R. A. 429, 27 Am. St. Rep. 529, 29 N. E. 313.

[74] *Lawson* v. *Conaway*, 37 W. Va. 159, 18 L. R. A. 627, 38 Am. St. Rep. 17, 16 S. E. 564; *Schoonover* v. *Holden* (Iowa) 87 N. W. 737.

[75] *Williams* v. *Brooklyn*, 33 App. Div. 539, 53 N. Y. Supp. 1007.

And refusal upon the part of a person who had suffered a personal injury to submit to an operation is not necessarily a forfeiture of his right to recover for the injury, though he made a mistake in not accepting the advice to submit to the operation. *Ibid.*

[76] *DuBois* v. *Decker*, 130 N. Y. 325, 14 L. R. A. 429, 27 Am. St. Rep. 529, 29 N. E. 313; *Sanderson* v. *Holland*, 39 Mo. App. 233; *Fowler* v. *Sergeant*, 1 Grant,

And the rule that a presumption of contributory negligence arises from a failure to conform to the directions of one's physician does not apply where the patient is insane; since in such case capacity for responsible co-operation with his physician might not exist.[77]

II. Proceedings for recovery of damages.

510. Limitation of actions for.—An action for malpractice is regarded as growing out of a failure to perform a duty imposed upon the defendant by the nature of his undertaking; and the right of action accrues, and the statute of limitations begins to run, when there is a breach of duty, and not when the loss or damage results from it.[78] And where the negligence or want of skill runs through the whole course of treatment, the statute will not begin to run until the professional relation is terminated.[79] Such an action, however, is not an action for an injury to the person within the meaning of statutes of limitations applicable to such actions.[80] The usual period of limitation of actions upon contract applies, whatever may have been the form of the action.[81] In some cases limitations expressly applicable to malpractice have been enacted;[82] but such statutes apply to the

Cas. 355; *McCracken* v. *Smathers*, 122 N. C. 799, 29 S. E. 354.

A surgeon unskillfully setting and dressing an injured arm, which injury is afterwards enhanced by carelessness and negligence in nursing, is liable only for the injuries which he brought about by his own negligence or want of skill. *Sanderson* v. *Holland*, 39 Mo. App. 233.

[77] *People ex rel. Norton* v. *New York Hospital*, 3 Abb. N. C. 229.

Where a patient is delirious, and cannot be made to understand the necessity of the treatment proposed by his physician, and members of his family having him in charge refuse to allow the proposed treatment, the physician will not be required to use force in order to relieve himself from liability. *Littlejohn* v. *Arbogast*, 95 Ill. App. 605.

[78] *Menefee* v. *Alexander*, 107 Ky. 279, 53 S. E. 653; *Coady* v. *Reins*, 1 Mont. 424; *Fadden* v. *Satterlee*, 43 Fed. 568; *Miller* v. *Ryerson*, 22 Ont. Rep. 369.

And it is not suspended in the case of an infant patient until the infant becomes of age. *Miller* v. *Ryerson*, 22 Ont. Rep. 369.

[79] *Gillette* v. *Tucker*, 67 Ohio St. 106, 93 Am. St. Rep. 639, 65 N. E. 865, Affirming 22 Ohio C. C. 664.

[80] *Menefee* v. *Alexander*, 107 Ky. 279, 53 S. W. 653.

[81] *Kuhn* v. *Brownfield*, 34 W. Va. 252, 11 L. R. A. 700, 12 S. E. 519; *Staley* v. *Jameson*, 46 Ind. 159, 15 Am. Rep. 285; *Burns* v. *Barenfield*, 84 Ind. 43; *Burrell* v. *Preston*, 54 Hun, 70, 7 N. Y. Supp. 177; *Shuman* v. *Drayton*, 14 Ohio C. C. 328.

In *Fadden* v. *Satterlee*, 43 Fed. 568, however, it was held that an action against physicians and surgeons called upon to attend a fractured thigh bone, alleging that they agreed for a valuable consideration to set and heal the plaintiff's leg and attend him until cured, and charging negligence and unskilful setting, dressing, and bandaging, is one founded on injuries to the person barred by a lapse of two years, under a statute barring such actions whether based on contract or tort, and not one on a written contract barred by a lapse of five years.

[82] See *Shuman* v. *Drayton*, 14 Ohio C. C. 328; *Tucker* v. *Gillette*, 11 Ohio S. & C. P. Dec. 226.

A statute requiring a notice to be given prior to the commencement of an action, such as, for malpractice, is in the nature of a statute of limitations; and objec-

remedy, and not to the right, so that, if the limitation is enlarged before a cause of action is barred, the enlarged limitation will take effect, and secure existence of the cause of action for the longer period,[83] though a diminution of limitation does not apply to subsisting causes of action, in the absence of express provision to that effect.[84] And an action against a physician for an injury to a patient in a professional operation is not removed from a limitation applicable to actions for malpractice by the fact that the complaint alleged a disregard of his duties and obligations under his contract of employment, upon the theory that the plaintiff had waived the tort so that the action was one upon contract.[85]

511. Survival of action.—The rule has been laid down and acted upon generally that an action against a physician or surgeon for malpractice does not survive after his death;[86] and that an action will not lie therefor against the administrator of a deceased physician.[87] And this is the rule whether the action is in form contract or tort; since in either event the purpose of the action is to recover for an injury to the person.[88] Nor will an action lie for malpractice causing the death of another, in the absence of provision therefor by statute.[89] A person entitled to the services of another, however, is entitled to maintain an action against a physician for malpractice causing the death of such person, to recover for loss of such services between the time of the injury and the time of death.[90] And the death of one of two physicians sued as partners for unskilful treatment, and the abatement of the action as to him, do not cause it to abate as to the survivor.[91] And a statutory provision giving an action to the surviving relatives for unlawful violence or negligence causing death con-

tion that the notice was not given must be taken either by answer or demurrer, and is waived if not so taken. *Meisenheimer* v. *Kellogg*, 106 Wis. 30, 81 N. W. 1033.

[83]*Coady* v. *Reins*, 1 Mont. 424.

[84]*Shuman* v. *Drayton*, 14 Ohio C. C. 328.

[85]*Tucker* v. *Gillette*, 22 Ohio C. C. 664.

[86]*Boor* v. *Lowrey*, 103 Ind. 468, 53 Am. Rep. 519, 3 N. E. 151; *Long* v. *Morrison*, 14 Ind. 595, 77 Am. Dec. 72; *Best* v. *Vedder*, 58 How. Pr. 187.

[87]*Jenkins* v. *French*, 58 N. H. 532; *Vittum* v. *Gilman*, 48 N. H. 416; *Best* v. *Vedder*, 58 How. Pr. 187; *Wolf* v. *Wall*, 40 Ohio St. 111.

So, the increased expenses to which a patient is put by reason of malpractice on the part of his physician cannot be recovered after the physician's death, of his executors, where such expenses were merely incidental to the injury. *Vittum* v. *Gilman*, 48 N. H. 416.

[88]*Boor* v. *Lowrey*, 103 Ind. 468, 53 Am. Rep. 519, 3 N. E. 151; *Wolf* v. *Wall*, 40 Ohio St. 111.

[89]*Myers* v. *Holborn*, 58 N. J. L. 193, 30 L. R. A. 345, 55 Am. St. Rep. 606, 33 Atl. 389.

[90]*Hyatt* v. *Adams*, 16 Mich. 180; *Cross* v. *Guthery*, 2 Root, 90, 1 Am. Dec. 61; *Long* v. *Morrison*, 14 Ind. 595, 77 Am. Dec. 72.

[91]*Hess* v. *Lowrey*, 122 Ind. 225, 7 L. R. A. 90, 17 Am. St. Rep. 355, 23 N. E. 156.

fers a right of action in a proper case against a physician for malpractice.[92]

512. Form of the action.—A person injured by the negligence or want of skill of a physician may sue for the injury, either as for breach of contract, or in tort as for breach of duty imposed by law upon the physician, whether for hire or not;[93] and either assumpsit or case may be maintained for breach of implied obligation upon the part of a physician to use proper care and skill;[94] and case is the proper remedy where the physician's employment was induced by false or fraudulent representations, or where proper skill was not employed.[95] If two physicians are employed by the same patient, and they are guilty of malpractice, a single action may be maintained against both though their employment was several; and there may be a recovery against each for his own tort whether or not there was a recovery against the other.[96] But a husband and wife cannot jointly sue a physician for malpractice in attending the wife, when the action is for the mere nonperformance of a duty imposed by the contract of employment; the action in such case would be solely in the right of the husband, and the wife could have no interest in it as a party thereto.[97]

513. Commencement of the action.—The person injured by malpractice is the proper one to bring an action therefor, without reference to the question who employed the physician;[98] though in case of injury to the person of a married woman by malpractice, the common-law rule, which seems to remain unaffected by statute in many instances, is that the husband and wife must join as plaintiffs.[99] It is sufficient in

[92]*Braunberger* v. *Cleis* (Pa.) 4 Am. L. Reg. N. S. 587.

But a right of action for malpractice exists under a statute giving an action to surviving relatives for unlawful violence or negligence causing death, only when the malpractice caused the death; however gross it may have been, it will not support an action if it was not the proximate cause of the death. *Ibid.*

[93]*Goble* v. *Dillon*, 86 Ind. 327, 44 Am. Rep. 308; *Lane* v. *Boicourt*, 128 Ind. 420, 25 Am. St. Rep. 442, 27 N. E. 1111; *Boor* v. *Lowrey*, 103 Ind. 468, 53 Am. Rep. 519, 3 N. E. 151.

[94]*Kuhn* v. *Brownfield*, 34 W. Va. 252, 11 L. R. A. 700, 12 S. E. 519.

The tort may be waived in an action for malpractice, and the action based upon the contract of employment. *Lane* v. *Boicourt*, 128 Ind. 420, 25 Am. St. Rep. 442, 27 N. E. 1111.

A complaint in an action for malpractice, stating that the plaintiff employed the defendant, and promised him compensation, and alleging a breach of the contract by failing to give the plaintiff proper attention, is a complaint in contract, and not in tort. *Ibid.*

[95]*Cadwell* v. *Farrell*, 28 Ill. 438.

[96]*Goble* v. *Dillon*, 86 Ind. 327, 44 Am. Rep. 308.

[97]*Dashiell* v. *Griffith*, 84 Md. 363, 35 Atl. 1094.

[98]*Pippin* v. *Sheppard*, 11 Price, 127.

[99]*Barnett* v. *Leonard*, 66 Ind. 422; *Long* v. *Morrison*, 14 Ind. 597, 77 Am. Dec. 72.

Where the statute provides that, when the death of one is caused by the wrongful act or omission of another, the personal representatives of the former may maintain an action therefor against the latter if the former might have maintained an action, had he lived, against the latter, for the same act or

such an action to aver that the defendant was retained as a physician or surgeon, and that he entered upon the cure of the patient: it need not be alleged that he undertook to properly or skilfully conduct himself.[100] And in pleading malpractice consisting of negligence, a general statement is sufficient; the particular circumstances attending the transaction in question need not be set forth;[1] and a defect in omitting to allege freedom from negligence on the part of the plaintiff is cured, where that issue is fully made up by the answer and reply.[2] A mere allegation of negligence, however, will not support proof of incompetency and want of skill,[3] or a recovery on that ground; and an allegation that the defendant promised to perfect a cure can only be sustained by positive proof of an express promise.[4] But an allega-

omission, a husband and the personal representatives of his wife must join in an action for malpractice resulting in her death; but he has no right to settle the suit or control its proceeds independent of her administrator, the statute declaring the use to be made of the proceeds. *Long* v. *Morrison*, 14 Ind. 595, 77 Am. Dec. 72.

And the abandonment of a wife by her husband, and his leaving the state, are incompetent in an action by her for malpractice against a physician, as an excuse for his nonjoinder; and in such case a demurrer for a defect of parties should be sustained. *Barnett* v. *Leonard*, 66 Ind. 422.

But the nonjoinder of a husband with the personal representative of his wife, in an action for malpractice resulting in her death, does not necessitate a reversal on appeal, where objection was not specifically raised in the court below. *Long* v. *Morrison*, 14 Ind. 595, 77 Am. Dec. 72.

[100] *Pippin* v. *Sheppard*, 11 Price, 127.

And a petition in an action for malpractice alleging that the defendant is a physician and surgeon engaged in the practice of medicine and surgery, and has been so engaged for several years last past, is not defective in failing to aver that he was a physician at the time he treated the patient in question. *Bower* v. *Self* (Kan.) 75 Pac. 1021.

[1] *Grannis* v. *Branden*, 5 Day, 260, 5 Am. Dec. 143.

A complaint charging negligence in the removal of two teeth not requiring to be removed, in allowing portions of them to remain, and in putting in defective bridgework, resulting in abscesses on the gum, charges the details of negligent professional treatment terminating in a single injury, not constituting separate causes of action, and may properly be set forth in a single count; and it is not objectionable as indefinite. *Brown* v. *Cady*, 91 App. Div. 415, 86 N. Y. Supp. 959.

[2] *Williams* v. *Nally*, 20 Ky. L. Rep. 244, 45 S. W. 874.

And an averment in an action for malpractice that the defendants, practising physicians and surgeons, undertook to set a broken arm of the infant son of the plaintiff, and by reason of their unskilfulness and negligence the arm had to be amputated, is sufficient to show that the plaintiff and his injured son were without fault, and that their negligence did not contribute to the result. *Scudder* v. *Crossan*, 43 Ind. 343.

And an action for malpractice against a physician is an action for damages on account of negligence causing personal injury, within the meaning of a statute providing that in all such actions it shall not be necessary for the plaintiff to allege or prove the want of contributory negligence. *Aspy* v. *Botkins*, 160 Ind. 170, 66 N. E. 462.

[3] *Alexander* v. *Menefee*, 23 Ky. L. Rep. 1151, 64 S. W. 855; *Mayo* v. *Wright*, 63 Mich. 32, 29 N. W. 832; *Degnan* v. *Ransom*, 83 Hun, 267, 31 N. Y. Supp. 966; *Baker* v. *Hancock*, 29 Ind. App. 456, 63 N. E. 323, 64 N. E. 38.

But defects in a complaint in an action for malpractice, in failing sufficiently to allege the negligence, cannot be reached by demurrer for want of sufficient facts, but only on a motion to make the complaint or particular allegations more specific as to negligence. *Barnett* v. *Leonard*, 66 Ind. 422.

[4] *Grindle* v. *Rush*, 7 Ohio, pt. 2, p. 123.

tion of negligence, ignorance, and want of skill, is always sufficient,[5] and warrants proof of particular acts of misconduct on the part of the defendant going to show the means by which the patient's injuries were inflicted.[6] An allegation, though charging the employment of the defendant, and the negligent and unskilful performance of his services, sets forth a breach of duty, and can be properly joined with other counts sounding in tort.[7] And a complaint against two or more defendants, whether founded upon contract or tort, will be treated as both joint and several; and although it alleges a joint liability, a recovery may be had against part of the defendants, where the proof shows a cause of action against them only.[8]

514. The issue; how determined.—The question as to the liability of a physician does not depend upon the general skill which he possesses, but rather upon whether in the particular case he has applied that reasonable skill and diligence which are ordinarily used in the profession.[9] And whether a physician used ordinary and reasonable care and skill, and whether his treatment was negligent and unskilful, are questions for the jury;[10] and so is the question whether the

[5]*Grannis* v. *Branden*, 5 Day, 260, 5 Am. Dec. 143; *Carpenter* v. *McDavitt*, 53 Mo. App. 393; *Lawson* v. *Conaway*, 37 W. Va. 159, 18 L. R. A. 627, 38 Am. St. Rep. 17, 16 S. E. 564.

Where, however, complaint in an action for malpractice proceeds upon the hypothesis that the physician did not exercise that degree of care and skill required in his profession, a recital to the effect that the plaintiff's injury was caused by the carelessness, negligence, and lack of skill and knowledge of the physician, does not amount to an averment of incapacity, but has relation to the general theory of the complaint. *Baker* v. *Hancock*, 29 Ind. App. 456, 63 N. E. 323, 64 N. E. 38.

[6]*Grannis* v. *Branden*, 5 Day, 260, 5 Am. Dec. 143.

The plaintiff in an action for malpractice may recover for the abandonment of his treatment by the physician, under a declaration charging that the defendant, after having entered upon the treatment, carelessly, negligently, and unskilfully conducted himself in that behalf, by means of which the injury resulted. *Lawson* v. *Conaway*, 37 W. Va. 159, 18 L. R. A. 627, 38 Am. St. Rep. 17, 16 S. E. 564.

And a declaration in an action against a veterinary surgeon for the alleged improper performance of an operation, charging want of care and skill with reference to the operation itself, is sustained by proof that the defendant failed to use such appliances or to prescribe such treatment as, to one who exercised reasonable skill and care, was obviously necessary to preserve the animal operated upon from injury resulting from the operation. *Williams* v. *Gilman*, 71 Me. 21.

[7]*Mullin* v. *Flanders*, 73 Vt. 95, 50 Atl. 813; *Cadwell* v. *Farrell*, 28 Ill. 438.

And a complaint in an action for malpractice charging that the defendant exposed the plaintiff to cold and inclement weather, made improper proposals to her, and against her will took improper liberties with her person, may properly be amended by adding a count of assault. *Thomas* v. *Dabblemont*, 31 Ind. App. 146, 67 N. E. 463.

[8]*Lower* v. *Franks*, 115 Ind. 334, 17 N. E. 630; *Goble* v. *Dillon*, 86 Ind. 327, 44 Am. Rep. 308.

[9]*Cayford* v. *Wilbur*, 86 Me. 414, 29 Atl. 1117; *Mertz* v. *Detweiler*, 8 Watts & S. 376; *Holtzman* v. *Hoy*, 19 Ill. App. 459.

[10]*Harriott* v. *Plimpton*, 166 Mass. 585, 44 N. E. 992; *Cayford* v. *Wilbur*, 86 Me. 414, 29 Atl. 1117; *Moratzky* v. *Wirth*, 67 Minn. 46, 69 N. W. 480; *Barkworth* v. *Palmer*, 118 Mich. 50, 76 N. W. 151; *Carpenter* v. *Blake*, 60 Barb. 488; *Car-*

omission of certain treatment was or was not negligence,[11] and whether the adoption of a substitute for the regular practice was proper.[12] And the jury must judge of the skill and qualifications of expert witnesses in the case, as well as of the defendant;[13] and as to whether or not there was contributory negligence; or whether the patient assumed the risk of incompetency on the part of the physician.[14] And a determination by a jury in a proper case will not be reconsidered on appeal, unless the court can see that it was the result of passion or prejudice.[15]

The question as to what constitutes ordinary skill and due care in the treatment of a patient, however, is one of law for the court.[16] And a jury should not be allowed to determine for themselves whether a physician's course of treatment has been proper or improper.[17] And where there is a fundamental contradiction in the testimony, and it depends absolutely upon expert evidence, instructions should be given enlightening the jury as to their duty, and presenting the exact issue, with a statement of the matter of fact upon which it turns.[18]

515. Presumption and burden of proof.—The burden rests with the plaintiff in an action for malpractice against a physician or surgeon

penter v. *Blake*, 75 N. Y. 12; *Barton* v. *Govan*, 4 N. Y. S. R. 876; *Rowe* v. *Lent*, 42 N. Y. S. R. 483, 17 N. Y. Supp. 131; *Link* v. *Sheldon*, 45 N. Y. S. R. 165, 18 N. Y. Supp. 815; *Boldt* v. *Murray*, 2 N. Y. S. R. 232; *Hewitt* v. *Eisenbart*, 36 Neb. 794, 55 N. W. 252; *Van Skike* v. *Potter*, 53 Neb. 28, 73 N. W. 295; *Olmsted* v. *Gere*, 100 Pa. 127; *Logan* v. *Field*, 75 Mo. App. 594.

[11] *Carpenter* v. *Blake*, 60 Barb. 488.

[12] *Vanhooser* v. *Bereghoff*, 90 Mo. 487, 3 S. W. 72.

And instruction in an action for malpractice assuming that the treatment of the defendant was not proper should not be given, its propriety being a question of fact upon the evidence. *Link* v. *Sheldon*, 45 N. Y. S. R. 165, 18 N. Y. Supp. 815.

[13] *Hewitt* v. *Eisenbart*, 36 Neb. 794, 55 N. W. 252.

And it is for them to say upon all the evidence, expert and otherwise, what treatment amounts to negligence under legal rules as to the skill required. *Ibid.*

[14] *Mallen* v. *Boynton*, 132 Mass. 443.

And where the case in an action for malpractice is such that it necessarily devolves carefulness on the plaintiff, and the proof given by him fairly puts in question the due exercise of care on his part, the jury should be left free to consider all the evidence in the case in determining the question of contributory negligence, and should not be confined to evidence given upon the part of the defendant only. *Robison* v. *Gary*, 28 Ohio St. 241.

[15] *Davis* v. *Spicer*, 27 Mo. App. 279.

And an inconsistency in a finding in an action for malpractice, that the defendant was guilty of negligence in that he was remiss in giving instructions to a nurse, and in not seeing that his instructions were properly carried out, will not entitle the defendant to a dismissal of action, but at most to a new trial, if there was evidence sufficient to go to the jury thereon. *McQuay* v. *Eastwood*, 12 Ont. Rep. 402.

[16] *Woodward* v. *Hancock*, 52 N. C. (7 Jones, L.) 384; *Tefft* v. *Wilcox*, 6 Kan. 46.

But while ordinary skill, care, and diligence is a question of law, the application of the law to the fact is for the jury, so that the question whether or not there has been due care in the particular case is a mixed one of law and fact. *Tefft* v. *Wilcox*, 6 Kan. 46.

[17] *Carstens* v. *Hanselman*, 61 Mich. 426, 1 Am. St. Rep. 606, 28 N. W. 159.

[18] *Richards* v. *Willard*, 176 Pa. 181, 35 Atl. 114.

to establish the facts upon which his right to recover depends.[19] One claiming negligence or want of skill on the part of a physician must allege and prove it.[20] And if improper abandonment of a case is relied upon for a recovery, it must be set out in the declaration and proved.[21] And the burden also rests with the person alleging it to show that the injury complained of resulted from the negligence of the physician;[22] or, to show absence of consent to the performance of an operation, when the patient voluntarily submitted.[23] And the burden of proof rests with the plaintiff in an action against physicians for falsely making a certificate of insanity of a person, to establish the claim that such person was not insane,[24] and that the physician was negligent when he made the examination.[25]

So, the burden rests with the plaintiff in an action for malpractice to show his freedom from negligence contributing to the result complained of.[26] And where the employer employs a physician for the benefit of his employees, he is presumed to use reasonable care in his selection; and the burden of proof of negligence in such selection rests with him who asserts it.[27] Where, however, the defendant takes the ground that the terms of his contract were such as to protect him from liability for his acts or omissions, or that the contract has been

[19] *Wells* v. *World's Dispensary Medical Asso.* 9 N. Y. S. R. 452; *Georgia Northern R. Co.* v. *Ingram*, 114 Ga. 639, 40 S. E. 708; *Baird* v. *Morford*, 29 Iowa, 531; *State use of Janney* v. *Housekeeper*, 70 Md. 162, 2 L. R. A. 587, 14 Am. St. Rep. 340, 16 Atl. 382; *M'Clallen* v. *Adams*, 19 Pick. 333, 31 Am. Dec. 140; *Conkey* v. *Carpenter*, 106 Mich. 1, 63 N. W. 990; *Vanhooser* v. *Berghoff*, 90 Mo. 487, 3 S. W. 72; *Leighton* v. *Sargent*, 31 N. H. 119, 64 Am. Dec. 323; *Wohlert* v. *Seibert*, 23 Pa. Super. Ct. 213.

But it is not necessary to prove it by evidence independent of, and unconnected with, the treatment in the case in question. *Leighton* v. *Sargent*, 31 N. H. 119, 64 Am. Dec. 323.

[20] *Robinson* v. *Campbell*, 47 Iowa, 625; *McKee* v. *Allen*, 94 Ill. App. 147; *Scudder* v. *Crossan*, 43 Ind. 343; *Pettigrew* v. *Lewis*, 46 Kan. 78, 26 Pac. 458; *Feeney* v. *Spalding*, 89 Me. 111, 35 Atl. 1027; *Cayford* v. *Wilbur*, 86 Me. 414, 29 Atl. 1117; *State use of Janney* v. *Housekeeper*, 70 Md. 162, 2 L. R. A. 587, 14 Am. St. Rep. 340, 16 Atl. 382; *Leighton* v. *Sargent*, 31 N. H. 119, 64 Am. Dec. 323; *Winner* v. *Lathrop*, 67 Hun, 511, 22 N. Y. Supp. 516; *Haire* v. *Reese*, 7 Phila. 138.

It rests with the plaintiff in an action against a physician for malpractice to show that the physician had not reasonable and ordinary skill; or that, having such skill, he neglected to apply it with such care and diligence as in his judgment, properly exercised, the case required. *Patten* v. *Wiggin*, 51 Me. 594, 81 Am. Dec. 593.

[21] *Bemus* v. *Howard*, 3 Watts, 255; *Ballou* v. *Prescott*, 64 Me. 305.

[22] *Chase* v. *Nelson*, 39 Ill. App. 53; *McKee* v. *Allen*, 94 Ill. App. 147; *Pettigrew* v. *Lewis*, 46 Kan. 78, 26 Pac. 458.

[23] *State use of Janney* v. *Housekeeper*, 70 Md. 162, 2 L. R. A. 587, 14 Am. St. Rep. 340, 16 Atl. 382.

[24] *Pennell* v. *Cummings*, 75 Me. 163.

[25] *Williams* v. *LeBar*, 141 Pa. 149, 21 Atl. 525.

[26] *Whitesell* v. *Hill*, 101 Iowa, 629, 37 L. R. A. 830, 70 N. W. 750, 66 N. W. 894; *Baird* v. *Morford*, 29 Iowa, 531; *Cayford* v. *Wilbur*, 86 Me. 414, 29 Atl. 1117. *Contra*, *Secord* v. *St. Paul, M. & M. R. Co.* 5 McCrary, 515, 18 Fed. 221.

[27] *Big Stone Gap Iron Co.* v. *Ketron* (Va.) 45 S. E. 740.

rescinded, he assumes the affirmative and has the burden of proof to that extent.[28]

516. Evidence; competency.—The ordinary rules as to competency and relevancy of evidence apply to actions for malpractice, except as affected by the peculiar character of the facts to which they are applied.[29] The question at issue in an action for malpractice is the conduct of, and treatment by, the defendant in the particular case in hand;[30] and his general skill or general reputation for skill is not relevant or competent when the basis of the charge against him is negligence.[31] Nor is his possession or nonpossession of a license or diploma competent or relevant as evidence.[32] But when the character and competency of the physician are put in issue, his qualifications and reputation for skill are competent and material;[33] though evidence of this character must be confined to general reputation; particular acts or specified facts are not admissible.[34] His skill may be shown, however, by the evidence of others in the same profession having knowledge of his practice;[35] and he himself may testify that he

[28]*Ballou* v. *Prescott*, 64 Me. 305.

[29]Both from the necessity of the case and on general grounds of public policy, a married woman is a competent witness for her husband in an action brought by him against a physician for malpractice in medical services rendered to her, notwithstanding the general rule that a married woman is incompetent to testify in behalf of her husband. *Cramer* v. *Hurt*, 154 Mo. 112, 77 Am. St. Rep. 752, 55 S. W. 258.

[30]*Mertz* v. *Detweiler*, 8 Watts & S. 376; *Cayford* v. *Wilbur*, 86 Me. 414, 29 Atl. 1117.

[31]*Mertz* v. *Detweiler*, 8 Watts & S. 376; *Holtzman* v. *Hoy*, 19 Ill. App. 459; *Smith* v. *Stump*, 12 Ind. App. 359, 40 N. E. 279; *Clark* v. *Com.* 111 Ky. 443, 63 S. W. 740; *Carpenter* v. *Blake*, 60 Barb. 488; *Williams* v. *Poppleton*, 3 Or. 139; *Graham* v. *Gautier*, 21 Tex. 111; *Poling* v. *San Antonio & A. P. R. Co.* (Tex. Civ. App.) 75 S. W. 69.

And evidence in an action for malpractice, of a claim by a physician that he possessed extraordinary skill and would effect a cure, is not admissible under a declaration charging a want of ordinary care and skill. *Goodwin* v. *Hersom*, 65 Me. 223.

[32]*Bute* v. *Potts*, 76 Cal. 304, 18 Pac. 329; *Big Stone Gap Iron Co.* v. *Ketron* (Va.) 45 S. E. 740.

But where a physician testifies in an action for malpractice that he was ordinarily skilful and had much experience, it is within the legitimate range of cross-examination to prove by his admission that he did not have a license obtained after examination as to his medical knowledge, for the purpose of discrediting his testimony. *Challis* v. *Lake*, 71 N. H. 90, 51 Atl. 260.

[33]*Lacy* v. *Kossuth County*, 106 Iowa, 16, 75 N. W. 689; *Grannis* v. *Branden*, 5 Day, 260, 5 Am. Dec. 143; *Vanhooser* v. *Berghoff*, 90 Mo. 487, 3 S. W. 72; *Carpenter* v. *Blake*, 50 N. Y. 696. And see *Doyle* v. *New York Eye & Ear Infirmary*, 80 N. Y. 631.

But evidence of the general character of the defendant in an action for malpractice, and that he was not a regularly educated physician and surgeon, is improper if offered to enhance damages. *Grannis* v. *Branden*, 5 Day, 260, 5 Am. Dec. 143.

[34]*Lacy* v. *Kossuth County*, 106 Iowa, 16, 75 N. W. 689; *Link* v. *Sheldon*, 45 N. Y. S. R. 165, 18 N. Y. Supp. 815.

[35]*Carpenter* v. *Blake*, 60 Barb. 488; *Williams* v. *Poppleton*, 3 Or. 139; *Clark* v. *Com.* 111 Ky. 443, 63 S. W. 740.

But the opinion of a physician with whom the defendant in a malpractice case studied his profession, as to whether the defendant possessed more than the ordinary skill of members of the profession, is not competent. *Leighton*

used his best skill and ability,[36] and explain the meaning of his acts.[37] Evidence of the professional character of assistants is admissible as tending to show performance of the duty to exercise care in their employment;[38] and evidence of the admission to practise of a physician would appear to be material and competent on the question as to whether his employment by an employer for the benefit of his employees was negligent.[39] And when evidence of good reputation for skill has been given, it may be rebutted by showing defective professional education or attainments, or irregular qualification.[40]

So, the general result of similar cases or operations is admissible;[41] but the particular results of the defendant's own cases cannot be shown.[42] Nor is it competent to show that no effort was made to re-

v. *Sargent*, 31 N. H. 119, 64 Am. Dec. 323.

And the general reputation of a medical institute at which a physician has attended lectures is not admissible in a malpractice case as bearing upon the question of his skill as compared with that of other surgeons. *Ibid.*

[36]*Doyle* v. *New York Eye & Ear Infirmary*, 80 N. Y. 631; *Fisher* v. *Niccolls*, 2 Ill. App. 484.

[37]*Twombly* v. *Leach*, 11 Cush. 397.

And a physician who has testified in an action for malpractice against him, that he administered proper remedies, may be required on cross-examination to detail the kind of medicine administered, though there was no charge in the complaint that he had administered medicine of any kind. *Thomas* v. *Dabblemont*, 31 Ind. App. 146, 67 N. E. 463.

[38]*Doyle* v. *New York Eye & Ear Infirmary*, 80 N. Y. 631; *Jones* v. *Angell*, 95 Ind. 376.

But the fact that a skilled surgeon assisted the defendant is not admissible in an action for malpractice as tending to prove either the skill or diligence of the defendant, where there appears to have been a disagreement in their mode of treatment, and the skilled surgeon did not attend by the procurement of the defendant. *Leighton* v. *Sargent*, 31 N. H. 119, 64 Am. Dec. 323.

[39]*Poling* v. *San Antonio & A. P. R. Co.* (Tex. Civ. App.) 75 S. W. 69.

But a newspaper publication of the proceedings of a medical board which admitted a physician to practise is immaterial and incompetent on that issue. *Ibid.*

[40]*Grannis* v. *Branden*, 5 Day, 260, 5 Am. Dec. 143; *Hess* v. *Lowrey*, 122 Ind. 225, 7 L. R. A. 90, 17 Am. St. Rep. 355, 23 N. E. 156; *Mayo* v. *Wright*, 63 Mich. 32, 29 N. E. 832; *Wilkins* v. *Ferrell*, 10 Tex. Civ. App. 231, 30 S. W. 450.

While no particular system of medicine may be established or favored by the laws of a state, proof that the defendant in an action for malpractice was a botanic physician, and of methods of treatment adopted under the botanic system of practice, and that his methods were according to that system, is admissible. *Bowman* v. *Woods*, 1 G. Greene, 441.

[41]*Peck* v. *Hutchinson*, 88 Iowa, 320, 55 N. W. 511.

But evidence as to how certain fractures are generally treated is not competent in an action for malpractice in improperly attending to such a fracture. *Link* v. *Sheldon*, 45 N. Y. S. R. 165, 18 N. Y. Supp. 815.

[42]*Greeno* v. *Roark*, 8 Kan. App. 390, 56 Pac. 329; *Leighton* v. *Sargent*, 31 N. H. 119, 64 Am. Dec. 323; *Link* v. *Sheldon*, 136 N. Y. 1, 32 N. E. 696, Affirming 45 N. Y. S. R. 165, 18 N. Y. Supp. 815; *Baker* v. *Hancock*, 29 Ind. App. 456, 63 N. E. 323, 64 N. E. 38; *Olmsted* v. *Gere*, 100 Pa. 127.

And evidence of what practice the defendant has had and of what cases he has treated, and his course of treatment with them, is inadmissible for the purpose of showing his skill in a malpractice case, where the character of the cases and their treatment appear only through the defendant's declarations in his own favor. *Leighton* v. *Sargent*, 31 N. H. 119, 64 Am. Dec. 323.

But where the defendant in an action against a veterinary surgeon for the improper performance of an operation

cover compensation for services;[43] and the jury should not be permitted to determine for themselves as to the propriety of a physician's treatment, by personal inspection.[44] But the actual condition and its probable causes may always be shown.[45] And the exhibition of the injured member has been permitted, apparently for the purpose of showing such condition;[46] and it is always competent to show a change of condition apparently due to the injury;[47] and the subsequent medical treatment may be shown.[48]

So, consultations held by physicians or surgeons at the time of the alleged improper treatment may be given in evidence;[49] but consulta-

upon an animal, testified without objection on cross-examination to the performance of two other similar operations on other animals, he may properly be asked as to the cause of the death of the other animals operated upon. *Williams* v. *Gilman*, 71 Me. 21.

[43]*Baird* v. *Gillett*, 47 N. Y. 186.

But evidence that a physician received no compensation from, and made no charges against, a patient for services, introduced by the defendant in an action for malpractice, if incompetent, is harmless, and not a ground for reversal at the instance of the plaintiff; since such evidence would be favorable to his case. *Jones* v. *Angell*, 95 Ind. 376.

[44]*Carstens* v. *Hanselman*, 61 Mich. 426, 1 Am. St. Rep. 606, 28 N. W. 159.

But an injured wrist of the plaintiff, in an action for malpractice in improperly attending to it, may be examined by the defendant in the presence of the jury, where she bared it, and exhibited it to the jury, and assumed to move it for the purpose of showing its defects. *Winner* v. *Lathrop*, 67 Hun, 511, 22 N. Y. Supp. 516.

[45]*Williams* v. *Nally*, 20 Ky. L. Rep. 244, 45 S. W. 874; *Whitesell* v. *Hill*, 101 Iowa, 629, 37 L. R. A. 830, 70 N. W. 750, 66 N. W. 894; *Quinn* v. *Higgins*, 63 Wis. 664, 53 Am. Rep. 305, 24 N. W. 482.

And evidence in an action for malpractice alleged to have caused blindness, that the treatment by a physician subsequently called was improper, is admissible; since, if the blindness was produced by his bad practice, the defendant could not be held responsible. *Doyle* v. *New York Eye & Ear Infirmary*, 80 N. Y. 631.

[46]*Hess* v. *Lowrey*, 122 Ind. 225, 7 L. R. A. 90, 17 Am. St. Rep. 355, 23 N. E. 156; *Fowler* v. *Sergeant*, 1 Grant, Cas. 355.

The plaintiff may be required to submit to an examination by experts for the purpose of enabling them to determine the extent of the injuries. *Walsh* v. *Sayre*, McClelland, Civil Malpractice, 303.

And the bones of a fractured leg may be introduced for the inspection of experts, in an action for malpractice in improperly setting it. *Williams* v. *Nally*, 20 Ky. L. Rep. 244, 45 S. W. 874.

[47]*Hewitt* v. *Eisenhart*, 36 Neb. 794, 55 N. W. 252; *Prichard* v. *Moore*, 75 Ill. App. 553; *Lawson* v. *Conaway*, 37 W. Va. 159, 18 L. R. A. 627, 38 Am. St. Rep. 17, 16 S. E. 564.

And photographic negatives taken by the Roentgen or X-ray process, showing the shape and size of a broken bone at different times in its treatment, are competent evidence in an action for malpractice. *Tish* v. *Welker*, 5 Ohio S. & C. P. Dec. 725.

[48]*Bower* v. *Self* (Kan.) 75 Pac. 1021; *Doyle* v. *New York Eye & Ear Infirmary*, 80 N. Y. 631.

Evidence as to the condition of a patient's health at the time medical treatment began, and as to the length of time he was treated by others after defendant had ceased to attend him, is admissible in an action for malpractice, where the jury is cautioned to compensate the plaintiff only for such injury and damage as may have been caused by the negligence of the defendant. *Leisenring* v. *LaCroix* (Neb.) 94 N. W. 1009.

[49]*Williams* v. *Poppleton*, 3 Or. 139.

And where, in an action for malpractice in attending to a patient's leg, it appears that medical gentlemen other than the attending physician had met in consultation without notice to him, it may be shown by other medical witnesses what the practice with regard to consultations was. *Mertz* v. *Detweiler*, 8 Watts & S. 376.

tions on other occasions cannot.[50] And the acts and condition of the physician at that time with reference to being intoxicated are admissible as a part of the *res gestæ*;[51] and so are the acts and conduct of the physician with reference to the case;[52] and the nature and properties of the medicines given may be shown.[53] And evidence of exclamations accompanying pain, and indicative of physical suffering upon the part of the plaintiff, made at the time of the alleged injury, is also admissible as original testimony.[54]

517. Evidence; sufficiency.—The usual rule regarding a preponderance of evidence to warrant a verdict seems to apply with full force to actions for malpractice.[55] A physician cannot be held liable, how-

[50] *Williams* v. *Poppleton*, 3 Or. 139.

[51] *Merrill* v. *Pepperdine*, 9 Ind. App. 416, 36 N. E. 921.

[52] Evidence of a statement by a physician that he would guarantee a cure of his patient in three months is admissible on an issue as to his incompetency and negligence, when taken in connection with other evidence going to show the incurable nature of the patient's ailment. *McDonald* v. *Harris*, 131 Ala. 359, 31 So. 548.

And a conversation between a patient and a third person, tending to show the patient's ignorance of his physician's absence from town, is admissible in an action for malpractice, in which it was alleged that the physician abandoned his patient without notice while the attention of a physician was still necessary. *Barbour* v. *Martin*, 62 Me. 536.

And evidence in an action for malpractice, that the defendant falsely or improperly pretended that the defendant's wife was afflicted with a named disease, attributing his want of success to that, is proper for the consideration of the jury for the purpose of showing his ignorance of the true state of her case, but is not to be considered as enhancing the damages. *Grannis* v. *Branden*, 5 Day, 260, 5 Am. Dec. 143.

[53] *Mertz* v. *Detweiler*, 8 Watts & S. 376.

And testimony on the part of the father of the plaintiff in an action for malpractice, in whose house she lived, and who had abundant means of knowing the treatment she received, as to whether he would be likely to know of the application of any other medicines than those prescribed, is not subject to the objection that it calls for the opinion of the witness on a matter of fact. *Cochran* v. *Miller*, 13 Iowa, 129.

[54] *Mayo* v. *Wright*, 63 Mich. 32, 29 N. W. 832; *Hyatt* v. *Adams*, 16 Mich. 180; *Link* v. *Sheldon*, 45 N. Y. S. R. 165, 18 N. Y. Supp. 815.

This is the rule, though some of them were made in the absence of the physician. *Hyatt* v. *Adams*, 16 Mich. 180.

And the fact that a physician attending a patient with a broken leg measured the limb, and said that it was all right, in the presence of the patient, who made no objection to the statement, is properly admitted in evidence in an action for malpractice in improperly caring for the limb, as a part of the *res gestæ* and as a verbal statement in the presence of, and acquiesced in by, the opposite party. *Piles* v. *Hughes*, 10 Iowa, 579.

But the opinion of the plaintiff in an action for malpractice, alleging improper treatment of his injured leg, that the bandages were too tight, is not admissible. *Mayo* v. *Wright*, 63 Mich. 32, 29 N. W. 832.

[55] See *Yaggle* v. *Allen*, 24 App. Div. 594, 48 N. Y. Supp. 827; *Getchell* v. *Lindley*, 24 Minn. 265; *Langford* v. *Jones*, 18 Or. 307, 22 Pac. 1064; *Gores* v. *Graff*, 77 Wis. 174, 46 N. W. 48.

Conflicting evidence as to the result of an operation performed by a physician will not warrant a verdict against him in an action for manslaughter, in the absence of evidence of any want of skill, knowledge, or care upon his part, where the evidence for the defense was positive and uncontradicted that the operation was a proper one, and was performed in a skilful and careful manner, and that it was impossible that it should have caused the injury complained of. *Feeney* v. *Spalding*, 89 Me. 111, 35 Atl. 1027.

And the mere fact that the credibility of a witness against the plaintiff in an

ever, on the mere conjecture of uneducated persons and nonexpert witnesses as to the propriety of his treatment; the question is one which must be determined largely upon expert evidence.[56] And proof showing a mere conjectural possibility that unfavorable results were due to want of care or skill is not sufficient.[57] And mere failure on the part of a physician to effect a cure does not establish or raise a presumption of a want of care on his part;[58] nor does the imperfect or only partial success of a surgical operation;[59] or the mere failure to discover a fracture or dislocation.[60] And the fact that a patient grew worse under a physician's treatment, and became better afterwards, is not evidence of improper treatment.[61] And a change of treatment does not tend to show previous improper treatment;[62] though a mistake in treatment and the necessity of a second operation afford some evidence of improper practice, which should go to the jury.[63] Nor is general incompetency established by proof that the

action for malpractice is involved does not have the effect to prove the nonexistence of the fact testified to by him. *Wells* v. *World's Dispensary Medical Asso.* 9 N. Y. S. R. 452.

[56]*Wurdemann* v. *Barnes*, 92 Wis. 206, 66 N. W. 111; *Quinn* v. *Higgins*, 63 Wis. 664, 53 Am. Rep. 503, 24 N. W. 482; *De Long* v. *Delaney*, 206 Pa. 226, 55 Atl. 965. And see *Ewing* v. *Goode*, 78 Fed. 442; *Gores* v. *Graff*, 77 Wis. 174, 46 N. W. 48; *Barker* v. *Lane*, 23 R. I. 224, 49 Atl. 963.

[57]*Martin* v. *Courtney*, 87 Minn. 197, 91 N. W. 487.

Testimony of a physician in an action for malpractice in caring for an injured hand, that the operation was a good job, and that he did not consider it negligent, but that he thought they could have saved the thumb, is of no probative force to show negligence on the part of the attending surgeon, and does not justify the submission of the question of malpractice to the jury. *Pepke* v. *Grace Hospital*, 130 Mich. 493, 90 N. W. 278.

[58]*Lawson* v. *Conaway*, 37 W. Va. 159, 18 L. R. A. 627, 38 Am. St. Rep. 17, 16 S. E. 564; *Wohlert* v. *Seibert*, 23 Pa. Super. Ct. 213.

The jury in an action for malpractice cannot draw the conclusion of unskilfulness upon the part of a physician from the result of the treatment; that the treatment was improper must be shown by evidence. *Sims* v. *Parker*, 41 Ill. App. 284.

[59]*Piles* v. *Hughes*, 10 Iowa, 579; *Whitesell* v. *Hill*, 101 Iowa, 629, 37 L. R. A. 830, 70 N. W. 750, 66 N. W. 894; *Pettigrew* v. *Lewis*, 46 Kan. 78, 26 Pac. 458; *Wood* v. *Barker*, 49 Mich. 295, 13 N. W. 597; *Stevenson* v. *Gelsthorpe*, 10 Mont. 563, 27 Pac. 404.

Especially is this so as against the testimony of practising physicians tending to prove, not only that the treatment and appliances used were approved by medical writers of eminence and authority, but also that the benefit resulting from such treatment was all that could be expected, and was extraordinary in view of the severity of the injury. *Stevenson* v. *Gelsthorpe*, 10 Mont. 563, 27 Pac. 404.

[60]*Richards* v. *Willard*, 176 Pa. 181, 35 Atl. 114; *James* v. *Crockett*, 34 N. B. 540.

But it may be considered in connection with all of the other evidence in the case, in determining whether or not he used ordinary skill and care to ascertain the character of the injury. *Richards* v. *Willard*, 176 Pa. 181, 35 Atl. 114.

[61]*Wurdemann* v. *Barnes*, 92 Wis. 206, 66 N. W. 111.

Nor does mere proof of negligence, carelessness, or inattention causing pain and suffering, authorize a recovery in an action for malpractice alleged to have rendered amputation necessary. *Moor* v. *Teed*, 3 Cal. 190.

[62]*Wood* v. *Barker*, 49 Mich. 295, 13 N. W. 597.

[63]*Sawdey* v. *Spokane Falls & N. R. Co.*

defendant engaged largely in other pursuits;[64] or by the fact that in making an amputation he used crude and unusual implements.[65] And if a physician adopted treatment not of any particular school in the abstract, but of his own particular school, which he publicly professed and practised, and the medical testimony offered by the plaintiff in an action against him for malpractice related to treatment prescribed by a different school, such testimony should be weighed, not alone with regard to bias or prejudice influencing the testimony of the witnesses, but with regard to bias or prejudice which might influence or incline the jury in favor of one school rather than the other.[66]

Proof that a physician accepted offered employment, however, is sufficient to sustain an averment that he was employed at his special instance and request;[67] and to sustain an action it is not necessary to establish gross culpability: mere evidence of want of proper or ordinary care or skill in the discharge of duty by a physician is sufficient to take the case to the jury.[68] And failure to discover a severe internal rupture, after complaint by the patient of local suffering, is sufficient to establish actionable negligence.[69] So, the fact that, after the healing of a fracture of an ankle, the foot was crooked and the ankle joint stiff, is sufficient to go to the jury;[70] and so is evidence of negligence and unskilfulness in handling a broken limb at the time

30 Wash. 349, 94 Am. St. Rep. 880, 70 Pac. 972.

And where it appears that a patient put himself under the care of a physician for the purpose of an operation upon his leg, and the right leg was prepared by the nurse under his direction, and the patient was put under the influence of chloroform, and the physician disputed the fact that it was the right leg that was to be operated upon, and failed to wait to hear from an inquiry by telephone addressed to the family of the patient, but proceeded to operate upon the left leg under direction of the patient's father, who was not there at the patient's request, there is sufficient evidence of negligence to go to the jury. *Sullivan* v. *McGraw*, 118 Mich. 39, 76 N. W. 149.

[64] *Mayo* v. *Wright*, 63 Mich. 32, 29 N. W. 832.

[65] *Alder* v. *Buckley*, 1 Swan, 68.

[66] *Force* v. *Gregory*, 63 Conn. 167, 22 L. R. A. 343, 38 Am. St. Rep. 371, 27 Atl. 1116.

[67] *Musser* v. *Chase*, 29 Ohio St. 577.

And proof in an action for malpractice, that the defendant was a farmer by general occupation, but that he also held himself out as a cancer doctor having skill and experience in the treatment and cure of cancers, and claimed to be in possession of a prescription procured from a cancer specialist that would remove cancers, not only sustains the averment that he was employed as a physician, but brings him within the rule of law which requires the exercise of such skill and care as are usually possessed and employed by general physicians in the treatment of such maladies. *Ibid.*

[68] *Link* v. *Sheldon*, 136 N. Y. 1, 32 N. E. 696. And see *Degelau* v. *Wight*, 114 Iowa, 52, 86 N. W. 36; *Leisenring* v. *La Croix* (Neb.) 94 N. W. 1009.

And evidence that a physician did not immerse his instruments in boiling water after use, in an action for malpractice, is sufficient on the question of their septic condition to warrant a hypothetical question addressed to a physician with respect to the effect of a puncture by an instrument not properly sterilized. *Bower* v. *Self* (Kan.) 75 Pac. 1021.

[69] *Lewis* v. *Dwinell*, 84 Me. 497, 24 Atl. 945.

[70] *Hickerson* v. *Neely*, 21 Ky. L. Rep. 1257, 54 S. W. 842.

of reducing the fracture, on the question of whether or not the setting was a bad job.[71]

518. Opinions as to propriety of treatment.—A physician called as a witness in an action for malpractice may be called upon for his opinion, based upon the facts, as to whether they indicate that care and attention upon the part of the defendant which the case demanded.[72] And whether the present condition of the patient is as good as the average condition in case of treatment by a skilled physician is a proper question for an expert.[73] Nor is it incompetent for a medical expert to testify as to what treatment a reasonably skilful physician would adopt in a given case.[74] And a physician who attends a person that had been in the care of another physician may give an opinion as to what was the first physician's treatment, and testify as to how it differs from his own, and as to its effect upon the patient;[75] and such opinions may be based upon hypothetical statements of the facts,[76] or upon the facts of the case as testified to by others, upon the assumption that they were true.[77] Where there is a conflict of evidence, however, as to the mode of treatment, a medical witness cannot give his opinion upon the treatment as disclosed by the evidence; since that would require him to determine what treatment the evidence disclosed;[78] and the question as to whether, taking the facts as the witness understood

[71] *Spaulding* v. *Bliss*, 83 Mich. 311, 47 N. W. 210.

[72] *Olmsted* v. *Gere*, 100 Pa. 127; *Wright* v. *Hardy*, 22 Wis. 348; *Quinn* v. *Higgins*, 63 Wis. 664, 53 Am. Rep. 503, 24 N. W. 482.

And physicians who are competent from education and experience to testify as to the propriety of medical treatment are not rendered incompetent by the fact that the action is against a magnetic healer, or one who pretends to possess certain powers of healing peculiar to himself, and the witness does not claim or pretend to know anything about that practice. *Longan* v. *Weltmer* (Mo.) 64 L. R. A. 969, 79 S. W. 655.

But declarations of another physician made in the plaintiff's presence after the defendant had been discharged from the case, to the effect that the treatment was right and proper, are not admissible in evidence in an action for malpractice; the declarant himself should be called to the stand to prove such statements. *Olmsted* v. *Gere*, 100 Pa. 127.

[73] *Ibid.*

[74] *Challis* v. *Lake*, 71 N. H. 90, 51 Atl. 260.

And what would be proper treatment for a simple fracture, and that treatment for a compound fracture would not be materially different, may be shown by the testimony of a physician in an action for malpractice against another physician in which negligent treatment of a compound fracture is alleged. *Leisenring* v. *LaCroix* (Neb.) 94 N. W. 1009.

And physicians familiar with massage treatment, and methods employed in giving it, and the reasonable requirements upon the part of patients in order to receive it, are competent to testify as experts as to whether it is reasonably necessary in giving massage treatment to a woman to require her to expose her person to the view of the operator, and whether it is customary where the operator is a man. *Bartell* v. *State*, 106 Wis. 342, 82 N. W. 142.

[75] *Barber* v. *Merriam*, 11 Allen, 322.

[76] *Olmsted* v. *Gere*, 100 Pa. 127.

[77] *Wright* v. *Hardy*, 22 Wis. 348; *Olmsted* v. *Gere*, 100 Pa. 127; *Getchell* v. *Hill*, 21 Minn. 464.

[78] *Bishop* v. *Spining*, 38 Ind. 143.

them, he could see any evidence of malpractice, is improper, as calling upon him to determine the very question the jury was impaneled to decide.[79] And the measure of a physician's responsibility to his patient is not a subject of professional skill concerning which a professional witness may testify.[80] Nor can a physician be called upon as an expert to testify in an action for malpractice as to whether the treatment by the defendant was proper or improper, based upon what he knows about the case; since what he knows about it probably embraces more than he has stated to the jury.[81]

519. Measure of damages.—Such damages may be allowed in an action for malpractice, as resulted from the injury sustained, and would be appropriate to the nature of the case, as disclosed by the evidence.[82] They should be at least compensatory;[83] and in determining the amount the jury should take into consideration the pain and suffering,[84] the loss of time caused,[85] the probability that the injury was permanent,[86] and the expenditure of money necessitated by the injury,[87] as well as the condition and circumstances of the injured

[79]*Hoener* v. *Koch*, 84 Ill. 408.

[80]*Mertz* v. *Detweiler*, 8 Watts & S. 376.

[81]*Burns* v. *Barenfield*, 84 Ind. 43.

The general subject of opinion evidence by medical experts is discussed *post*, Chap. XXVII.

[82]*Stone* v. *Evans*, 32 Minn. 243, 20 N. W. 149; *Challis* v. *Lake*, 71 N. H. 90, 51 Atl. 260; *Brooke* v. *Clark*, 57 Tex. 105.

The measure of damages in an action against a surgeon for malpractice in setting and treating a broken arm is the damage accruing to the plaintiff in excess of that which would have naturally accrued to him from the breaking of his arm had he been treated with a proper degree of care and skill. *Miller* v. *Frey*, 49 Neb. 472, 68 N. W. 630.

[83]*Long* v. *Morrison*, 14 Ind. 597, 77 Am. Dec. 72; *Lathrope* v. *Flood*, 135 Cal. 458, 57 L. R. A. 215, 63 Pac. 1007, 67 Pac. 683.

But a charge upon the question of damages in an action for malpractice is erroneous, where it emphasizes the giving of compensation by the use of the words "full, complete, and ample." *Sale* v. *Eichberg*, 105 Tenn. 333, 52 L. R. A. 894, 59 S. W. 1020.

[84]*Leighton* v. *Sargent*, 31 N. H. 119, 64 Am. Dec. 323; *Lathrope* v. *Flood*, 135 Cal. 458, 57 L. R. A. 215, 63 Pac. 1007, 67 Pac. 683; *Smith* v. *Overby*, 30 Ga. 241; *McCracken* v. *Smathers*, 122 N. C. 799, 29 S. E. 354.

But a physician called to attend an injury, who does so improperly, can only be held liable for any additional pain and suffering which the plaintiff underwent because of his want of care and skill in the treatment of the injury; he cannot be held responsible for the direct results of the original injury. *Wenger* v. *Calder*, 78 Ill. 275.

[85]*Leighton* v. *Sargent*, 31 N. H. 119, 64 Am. Dec. 323; *Tefft* v. *Wilcox*, 6 Kan. 46; *McCracken* v. *Smathers*, 122 N. C. 799, 29 S. E. 354.

[86]*Ibid.*

[87]*Leighton* v. *Sargent*, 31 N. H. 119, 64 Am. Dec. 323; *Tefft* v. *Wilcox*, 6 Kan. 46.

This, however, does not include the amount paid to a physician for services, where it does not appear to have been wholly for services to remedy the injury resulting from the defendant's want of skill; but if the amount paid exceeded what would have been necessarily paid if the injury had been properly treated, such excess may be included. *Leighton* v. *Sargent*, 31 N. H. 119, 64 Am. Dec. 323.

And there can be no recovery for expenses incurred in efforts to cure an injury, in an action for malpractice, unless it be shown that the expenses so incurred were reasonably necessary. *Hewitt* v. *Eisenbart*, 36 Neb. 794, 55 N. W. 252.

And a husband cannot recover against

party.[88] And a recovery must embrace prospective as well as accrued damages.[89] Mental suffering, both past and future, as well as bodily pain, is also proper for consideration on the question of due compensation.[90] And a husband may recover for the loss of the services of his wife during the continuance of her life.[91] And exemplary damages may be recovered in a case of negligence or improper treatment, where indifference to consequences appears.[92] An act, however, which was not grossly reckless or wilful, but merely the result of a want of ordinary care and skill, warrants a recovery for actual damages only;[93] and the allowance of damages for mental agony or suffering is restricted to that of the person who received the injury sued for.[94] And the measure of damages under a statute giving a right of action for unlawful violence or negligence causing death is the

a physician in an action for malpractice causing injury to his wife, for expenses incurred or paid on her account though alleged in his declaration, in the absence of evidence that they were so incurred or paid. *Hyatt* v. *Adams*, 16 Mich. 180.

[88]*Tefft* v. *Wilcox*, 6 Kan. 46; *Fowler* v. *Sargeant*, 1 Grant, Cas. 355.

[89]*Howell* v. *Goodrich*, 69 Ill. 556.

[90]*Brooke* v. *Clark*, 57 Tex. 105; *Smith* v. *Overby*, 30 Ga. 241.

Mental suffering naturally attendant and incident to physical pain prolonged by the failure of a physician to discover the seat of a bodily injury is a proper element of damage in an action for malpractice. *Manser* v. *Collins* (Kan.) 76 Pac. 851.

It has been held, however, that where no malice is shown on the part of a physician, the court will not allow pecuniary compensation for mental suffering resulting from his act, but only the actual damages established. *Jeannotte* v. *Couillard*, Rap. Jud. Quebec, 3 B. R. 461.

[91]*Stone* v. *Evans*, 32 Minn. 243, 20 N. W. 149; *Nixon* v. *Ludlam*, 50 Ill. App. 273.

But loss of services would have to be specially pleaded. *Stone* v. *Evans*, 32 Minn. 243, 20 N. W. 149.

[92]*Cochran* v. *Miller*, 13 Iowa, 128; *Brooke* v. *Clark*, 57 Tex. 105.

In such case the physician would not be exempted from exemplary damages upon a mere showing that he had no bad motive, or that in other matters he had shown due care. *Brooke* v. *Clark*, 57 Tex. 105.

And an act upon the part of a physician expediting death does not constitute a mere technical injury, for which only nominal damages can be given, but is one for which exemplary damages may be imposed. *Gray* v. *Little*, 126 N. C. 385, 35 S. E. 611.

But the facts warranting the allowance of something more than compensatory damages must be pleaded and proved. *Baxter* v. *Campbell* (S. D.) 97 N. W. 386.

[93]*Hyatt* v. *Adams*, 16 Mich. 180; *Baxter* v. *Campbell* (S. D.) 97 N. W. 386.

But a statutory provision by which a person's representatives cannot recover more than $5,000 for an injury causing his death does not render it necessary that a recovery for malpractice should be less than $5,000, where it caused great personal suffering and permanent disability. *Kelsey* v. *Hay*, 84 Ind. 189.

[94]*Hyatt* v. *Adams*, 16 Mich. 180.

And where action is brought by a husband against a physician for malpractice causing his wife's death, no damages for mental suffering can be allowed. *Ibid.*

In *Long* v. *Morrison*, 14 Ind. 595, 77 Am. Dec. 72, however, it was held that, in an action by a husband against a physician for malpractice causing his wife's death, her pain and suffering may be considered, but not that of her parents or her husband.

And *Stone* v. *Evans*, 32 Minn. 243, 20 N. W. 149, holds that damages suffered by a husband on account of the malpractice of a physician in attending his wife, for his own mental anxiety and distress growing out of his relationship and sympathy, if recoverable at all, cannot be recovered as an independent item or

pecuniary loss only.[95] The question of damages in such cases being one for the jury, a verdict will not be disturbed unless the damages are such as to indicate that the jury acted from prejudice or corruption, or were misled as to the measure of damages.[96]

520. Application of rules as to former recovery.—Under the rule that a matter cannot be twice litigated, a judgment on the merits in a previous action against a surgeon for malpractice bars a defense for malpractice in an action by the physician for his fee.[97] And a judgment in favor of a physician and surgeon for his professional services, rendered by a court of competent jurisdiction in an action in which the defendant appeared and answered, setting up a defense of malpractice, which he maintained at the trial, is a bar to an action by that defendant against the physician and surgeon for malpractice in rendering such services.[98] So, in an action against two surgeons for malpractice, an answer by one of them that on a trial on the merits he had obtained judgment for his services in the matter in question is a good defense; and a reply that the action for malprac-

element, but must be considered by the jury as a matter of aggravation in the general estimate.

[95]*Braunberger* v. *Cleis* (Pa.) 4 Am. L. Reg. N. S. 587; *Lathrope* v. *Flood*, 135 Cal. 458, 57 L. R. A. 215, 63 Pac. 1007, 67 Pac. 683.

And where the statute entitles the widow alone to damages for the death of her husband by negligence or default of another, a direction to the jury in an action against a physician for causing the death of a man by malpractice, to give damages to recompense the estate, is erroneous; since it, in effect, directs the giving of damages for the injury sustained in his death by his children, as well as his widow. *Gores* v. *Graff*, 77 Wis. 174. 46 N. W. 48.

[96]*Kelsey* v. *Hay*, 84 Ind. 189; *Howard* v. *Grover*, 28 Me. 97, 48 Am. Dec. 478.

A verdict which would not be set aside as excessive in an action for malpractice, if confined to actual damages, will not be set aside on the ground that the court erred in submitting to the jury the question of exemplary damages, where the record does not show that the objection thereto was made in the court below. *Brooke* v. *Clark*, 57 Tex. 105.

And a verdict of $7,500 in an action for malpractice in which treatment was by a magnetic healer, consisting of manipulation which resulted in rupturing the ligaments connecting the spine and hip bone, permanently injuring the back, spine, and pelvic organs, causing great pain and suffering, and resulting in the probable shortening of the patient's life, is not excessive. *Longan* v. *Weltmer* (Mo.) 64 L. R. A. 969, 79 S. W. 655.

[97]*Haynes* v. *Ordway*, 58 N. H. 167; *Edwards* v. *Stewart*, 15 Barb. 67.

But a judgment in favor of a physician for services confessed by his patient as a condition imposed by the chancellor granting an injunction to prevent the prosecution of an action to recover compensation therefor, pending one against the physician for malpractice, will not, upon reversal of the injunction order, operate as an estoppel against an action for malpractice. *Sale* v. *Eichberg*, 105 Tenn. 333, 52 L. R. A. 894, 59 S. W. 1020.

[98]*Blair* v. *Bartlett*, 75 N. Y. 150, 31 Am. Rep. 455; *Gates* v. *Preston*, 41 N. Y. 113; *Bellinger* v. *Craigue*, 31 Barb. 534; *Howell* v. *Goodrich*, 69 Ill. 556; *Goble* v. *Dillon*, 86 Ind. 327, 44 Am. Rep. 308; *Lawson* v. *Conaway*, 37 W. Va. 159, 18 L. R. A. 627, 38 Am. St. Rep. 17, 16 S. E. 564.

It is optional with a person sued by a physician for services, whether he will set up a claim for malpractice in that suit, or sue upon it in another action brought by himself, though, if he choose to set it up, and that issue is adjudicated against him, he cannot again litigate it. *Goble* v. *Dillon*, 86 Ind. 327, 44 Am. Rep. 308.

tice was pending when the other was commenced is not good.[99] But when a judgment was by default, and no defense whatever was made, the majority of the cases would seem to hold that the question of malpractice or diligence and skill was not involved, and that the patient had not impaired his right of action by failing to appear in the suit against him, such a judgment being no bar;[100] though some of the New York cases, followed, perhaps, in New Jersey, Arkansas, and other states, seem to hold the rule that a recovery by a physician is a bar to the patient's action in the nature of an estoppel, whether the action was a litigated one or not; adopting the theory that the question of the care and skill of the physician was necessarily adjudicated, whether there was a defense or not.[101]

III. Criminal liability.

521. General rules.—A mere mistake of judgment by a physician in the selection and application of remedies and appliances does not render him criminally liable for the result.[1] And it has been held that, if a person prescribes for, or gives medicine to, another, acting with an honest expectation and intention of curing him, he is not

[99] *Ibid.*

But a former recovery in favor of a physician in an action for his services is not a bar in favor of another physician employed by the patient at the same time, in a joint action against them by the patient for malpractice. *Ibid.*

And a separate answer by one of two physicians sued jointly in tort for malpractice, alleging that the other had recovered a valid judgment for his services, does not show a release of the one pleading, though the judgment was sufficient to estop the suit against the defendant who obtained it. *Ibid.*

[100] *Lawson* v. *Conaway*, 37 W. Va. 159, 18 L. R. A. 627, 38 Am. St. Rep. 17, 16 S. E. 564; *Jordahl* v. *Berry*, 72 Minn. 119, 45 L. R. A. 541, 71 Am. St. Rep. 469, 70 N. W. 10; *Goble* v. *Dillon*, 86 Ind. 327, 44 Am. Rep. 308; *Sykes* v. *Bonner*, 1 Cin. Sup. Ct. Rep. 464; *Resscquie* v. *Byers*, 52 Wis. 650, 38 Am. Rep. 775, 9 N. W. 779.

[101] *Gates* v. *Preston*, 41 N. Y. 113; *Bellinger* v. *Craigue*, 31 Barb. 534; *Blair* v. *Bartlett*, 75 N. Y. 150, 31 Am. Rep. 455; *Schopen* v. *Baldwin*, 83 Hun, 234, 31 N. Y. Supp. 581. And see *Ely* v. *Wilbur*, 49 N. J. L. 685, 60 Am. Rep. 668, 10 Atl. 358, 441; *Dale* v. *Donaldson Lumber Co.* 48 Ark. 188, 3 Am. St. Rep. 224, 2 S. W. 703; *Sale* v. *Eichberg*, 105 Tenn. 333, 52 L. R. A. 894, 59 S. W. 1020.

[1] *State* v. *Hardister*, 38 Ark. 605, 42 Am. Rep. 5; *State* v. *Reynolds*, 42 Kan. 320, 16 Am. St. Rep. 483, 22 Pac. 410; *Rex* v. *Webb*, 1 Moody & R. 405, 2 Lewin, C. C. 196; *Rex* v. *Van Butchell*, 3 Car. & P. 629; *Reg.* v. *Macleod*, 12 Cox, C. C. 534; *Reg.* v. *Noakes*, 4 Fost. & F. 920; *Rex* v. *Williamson*, 3 Car. & P. 635. And see *State* v. *Reynolds*, 42 Kan. 320, 16 Am. St. Rep. 483, 22 Pac. 410.

A person acting as a medical man, whether licensed or unlicensed, is not criminally responsible for the death of a patient occasioned by his treatment, unless his conduct was characterized either by gross ignorance of his art or gross inattention to his patient's safety. *Rex* v. *Long*, 4 Car. & P. 398.

And where it appears that the cork was found broken and half out of a bottle of prussic acid, so that it was impossible to say how much of the poison might have escaped, or that the liquid might not have dropped faster than the accused supposed it would, it cannot be held that the giving of an overdose was such culpable negligence as would ren-

criminally responsible for an unfavorable and unexpected result;[2] and that the rule is the same whether or not he was ignorant of medical science;[3] and that to render him criminally responsible it must appear that he was acting with a wicked or evil purpose,[4] or that his neglect was wilful or felonious.[5] But the prevailing rule would seem to be that a physician is criminally responsible as for homicide if death occurs, and as for an assault if not, for the results of gross ignorance of the art he assumed to practise, or of gross ignorance in the selection or application of remedies, or of gross negligence with reference thereto, whatever may have been his purpose.[6] Within this rule, if his act was the result of foolhardy presumption or gross negligence, he is as responsible for the result as though he had done unlawful acts for independent reasons.[7] And the rule is the same with reference to the use of dangerous applications[8] or instruments.[9]

der him criminally responsible for the result. *Reg.* v. *Bull*, 2 Fost. & F. 201.

[2]*State* v. *Schulz*, 55 Iowa, 628, 39 Am. Rep. 187, 8 N. W. 469; *Com.* v. *Thompson*, 6 Mass. 134; *Rice* v. *State*, 8 Mo. 561; *Robbins* v. *State*, 8 Ohio St. 138.

[3]*Com.* v. *Thompson*, 6 Mass. 134; *Rice* v. *State*, 8 Mo. 561; *Robbins* v. *State*, 8 Ohio St. 138; *Rex* v. *Long*, 4 Car. & P. 398.

And in a prosecution for manslaughter by reason of gross negligence and ignorance in surgical treatment, evidence as to former cases treated by the accused cannot be gone into by either side, though witnesses may be asked as to defendant's scientific skill. *Reg.* v. *Whitehead*, 3 Car. & K. 202.

[4]*Caywood* v. *Com.* 7 Ky. L. Rep. 224; *Reg.* v. *Spencer*, 10 Cox, C. C. 525.

[5]*State* v. *Power*, 24 Wash. 34, 63 L. R. A. 902, 63 Pac. 1112.

An instruction, however, that the law imposes upon a physician the duty of directing sanitary conditions surrounding the patient, of prescribing the proper medicine and means and manner of taking it, and whatever other appliances and operations are necessary to restoration of health, is not subject to objection that it tells the jury that any negligent or improper treatment of the deceased as distinguished from want of skill or attention would be sufficient to convict. *Ibid.*

[6]*State* v. *Hardister*, 38 Ark. 605, 42 Am. Rep. 5; *Com.* v. *Pierce*, 138 Mass. 165, 52 Am. Rep. 264; *Rex* v. *Spiller*, 5 Car. & P. 333; *Rex* v. *Long*, 4 Car. & P. 432.

Criminal negligence may consist of any negligent use of medicines in the use of which care is required, and of the properties of which the person using them is ignorant. *Reg.* v. *Markuss*, 4 Fost. & F. 356.

[7]*Com.* v. *Pierce*, 138 Mass. 165, 52 Am. Rep. 264; *Rice* v. *State*, 8 Mo. 561; *Rex* v. *Senior*, 1 Moody, C. C. 346, 1 Lewin, C. C. 183, note.

But to render a physician criminally responsible for the result of his acts as such, it must be made to appear that there was such gross and culpable negligence as would tend to show an evil mind. *Reg.* v. *Spencer*, 10 Cox, C. C. 525.

And the actual condition of the individual's mind with regard to the consequences of his acts should be taken into consideration as distinguished from mere knowledge of present or past circumstances from which someone or everybody else might be led to anticipate or apprehend such consequences from the acts done. *Com.* v. *Pierce*, 138 Mass. 165, 52 Am. Rep. 264.

[8]*Reg.* v. *Crook*, 1 Fost. & F. 521; *Rex* v. *Long*, 4 Car. & P. 398.

And an allegation in an indictment against a person acting as a medical practitioner, charging that the death of a person was caused by a plaster made and applied by accused, is sufficiently proved by showing that three plasters were applied, two of them by accused, and that the third was made from materials furnished by him. *Rex* v. *Spiller*, 5 Car. & P. 333.

[9]*Reg.* v. *Spilling*, 2 Moody & R. 107.

And a person having no medical education who hazards the use of medicine of a dangerous tendency when medical assistance could be had does so at his own peril; and if it results in death he is guilty of manslaughter.[10] The question in such a case is whether, with reference to the remedy, appliance, or instrument used, and the conduct displayed by the physician, he acted with a due degree of caution, or with gross and improper rashness, and want of caution;[11] and this is one for the jury.[12] Where an act of malpractice was knowingly and wilfully done for the purpose of accomplishing some unlawful object, though not death, and death ensued, it would be murder, and not merely manslaughter.[13]

So a false statement made to another by a person representing himself to be a physician possessing extraordinary and supernatural powers, that he had the power to cure him, and that he would exert that power to cure him, upon which he obtained money, is not only a future promise, but also a present false representation, for which he can be held criminally liable in a prosecution for obtaining money under false pretenses.[14] And a male physician who so violates the

[10] *Rex* v. *Simpson*, 1 Lewin, C. C. 172; *Reg.* v. *Markuss*, 4 Fost. & F. 356; *Rex* v. *Webb*, 1 Moody & R. 405, 2 Lewin, C. C. 196; *Reg.* v. *Macleod*, 12 Cox, C. C. 534; *Reg.* v. *Bull*, 2 Fost. & F. 201; *Reg.* v. *Chamberlain*, 10 Cox, C. C. 486; *Tessymond's Case*, 1 Lewin, C. C. 169; *Rex* v. *Van Butchell*, 3 Car. & P. 629.

And the fact that he may be liable for penalties does not affect his liability for manslaughter. *Rex* v. *Van Butchell*, 3 Car. & P. 629.

But where a person is injured on the head by blows which render a surgical operation apparently necessary, and he afterwards dies, the person giving the blows cannot escape criminal responsibility for the death upon the ground that it was caused by the surgical operation, and not by the blows, unless it clearly appears that improper treatment of the wound, and not the wound itself, was the sole cause of the death. *Territory* v. *Yee Dann*, 7 N. M. 439, 37 Pac. 1101.

[11] *Rex* v. *Long*, 4 Car. & P. 423. And see *Reg.* v. *Crick*, 1 Fost. & F. 519; *Ferguson's Case*, 1 Lewin, C. C. 181.

The prosecution on an indictment for manslaughter against a medical man for administering poison by mistake for some other drug is bound to show that the poison got into the mixture in consequence of his gross negligence. It is not sufficient to show merely that he dispensed his own drugs, and supplied a mixture containing a large quantity of poison. *Reg.* v. *Spencer*, 10 Cox, C. C. 525.

And where it appears that medicine was prescribed for a child, and that the mother took the advice of the person prescribing it, and that the child got much better, and that she then left off giving the medicine, after which the child died, a favorable view of the conduct of the accused should be recommended. *Reg.* v. *Crick*, 4 Fost. & F. 519.

[12] *Reg.* v. *Whitehead*, 3 Car. & K. 202; *Reg.* v. *Markuss*, 4 Fost. & F. 356.

[13] *State* v. *Wagner*, 78 Mo. 644, 47 Am. Rep. 131. And see *Dresback* v. *State*, 38 Ohio St. 365.

But a homicide committed by poison heedlessly or negligently administered for no unlawful purpose will amount at most to manslaughter. *State* v. *Wagner*, 78 Mo. 644, 47 Am. Rep. 131.

[14] *State* v. *Jules*, 85 Md. 305, 36 Atl. 1027.

And evidence in a prosecution for obtaining money under false pretenses, against one who pretended to have extraordinary and supernatural powers to cure, that he pressed a paper upon which the patient had written his name and age against his forehead, and

rules of propriety by causing a female patient to submit, or unnecessarily expose, herself to him, pretending and causing her to believe that such submission or exposure is a necessary incident to the treatment for curative purposes which she solicits at his hands, that his conduct assumes the character of a trespass upon her person, is criminally liable as for an assault.[15] And a woman claiming to be able to cure all diseases and troubles, including poverty, by sending her thoughts out to indefinite distances, and thus affecting the bodies of others, and that she could influence the physical condition of third persons through the mind of a second person, and offering through the mails to perform such services for hire, is guilty of the offense of making use of the mails in aid of fraud, where she knew she could not do what she promised to do, and made the promise for the purpose of getting money, without intending to perform.[16]

522. Consent as a defense.—Consent on the part of a patient is a defense in a criminal prosecution against a physician or surgeon for injuries alleged to have been caused by the physician, only where his acts were performed with due care and skill: it is no excuse for recklessness or want of skill.[17]

walked up and down the room, and told the contents of the paper, and announced that the patient suffered from stomach trouble and that he would cure him within six weeks, and directed a charm to be worn; and that after securing the patient's money, he left the city, —tends to prove that it was a false representation, and is therefore admissible. *Ibid.*

[15]*Bartell* v. *State*, 106 Wis. 342, 82 N. W. 142; *Rex* v. *Rosinski*, 1 Moody, C. C. 19.

And evidence that a magnetic healer had cured others by his method of treatment is not competent in a prosecution against him by a patient for an assault and battery in improperly and unnecessarily requiring her to expose her person, the only question at issue being whether or not he acted in good faith. *Bartell* v. *State*, 106 Wis. 342, 82 N. W. 142.

But it is not an assault and battery upon the part of a male physician called upon to treat a female patient, to cause her to expose her body to his view for the purpose of such treatment, where he acts in good faith, and for the purpose of curing a disease with which she is supposed to be afflicted. *Ibid.*

[16]*United States* v. *Post*, 128 Fed. 950.

And the burden would rest with her to satisfy the jury, in an action against her for using the mails in aid of fraud, by showing that she possessed such power. *Ibid.*

And the testimony of witnesses in such a prosecution that they had been treated by her, and cured while at a great distance from her, is so contrary to the well-established rules of evidence and natural law that it may be disregarded and ignored, though it stands without contradiction. *Ibid.*

[17]*State* v. *Gile*, 8 Wash. 12, 35 Pac. 417; *Com.* v. *Pierce*, 138 Mass. 165, 52 Am. Rep. 264.

CHAPTER XX.

USE OF HYPNOTISM.

523. Proposed restriction; legal consideration. — Hypnotism, defined to be artificial somnambulism, is sometimes made use of as a curative agent; and in the United States there seems to be no legal restriction upon the use of hypnotism either by physicians or others. In view, however, of the possibility of the commission of crime under hypnotic suggestion, and of the fact that damage in the use of hypnotism may arise from the want of knowledge, or from carelessness, or intentional abuse, or from too continuous repetition of the suggestion in unsuitable cases, the opinion has been advanced that the practice of hypnotism should be limited by law, and public exhibitions thereof should be entirely prohibited;[1] and it has been suggested that, when used for therapeutic purposes, its employment should be confined to qualified medical men.[2] Legislation limiting the use of hypnotism, and prohibiting its illegitimate exercise, has been enacted in Russia, Prussia, France, Italy, and Switzerland.[3]

[1] 2 Hamilton, Legal Medicine, 212; Report of Committee on Hypnotism of the British Medical Association at Birmingham, 1890, Reported in 11 Medico-Legal Journal, 73. And see note, on Hypnotism, to *People* v. *Ebanks*, 40 L. R. A. 269.

In Russia no physician can hypnotize except in the presence of two others; in Prussia public exhibitions of hypnotism are forbidden; and in France the use of hypnotic suggestion is limited to the medical profession. Marion L. Dawson, B. L., on Hypnotism in Its Scientific and Forensic Aspects, in The Arena, vol. 18, p. 554.

In 3 American Lawyer, 535, however, H. Gerald Chapin, LL. B., in an article on the Forensic Aspect of Hypnotism, arrived at the conclusion that no laws need be passed to restrain the exercise of hypnotism, and said that it would seem to be better to place it in the same category as intoxicating liquors and explosives; any person may purchase or own them, and he is only to be held accountable for the manner of their use.

And in The Arena, vol. 18, p. 554, it was said by Marion L. Dawson, B. L., in an article on Hypnotism in Its Scientific and Forensic Aspects, that, before the medical profession could reasonably claim any right to the sole use of psychic phenomena, it should be required to show that physicians are better qualified than other scientists to use the power for the benefit of the afflicted, and less liable to employ it for injurious purposes.

[2] Report of Committee on Hypnotism of the British Medical Association at Birmingham, 1890, reported in 11 Medico-Legal Journal, 73.

[3] J. S. Rosenberger in 1 Kansas City Bar Monthly, 17.

Hypnotism, though much discussed in connection with legal matters, has been given but little attention by the courts. Though the theory has been advanced that a hypnotized person committing a crime or making a contract cannot be regarded as a free moral agent, its legal effect as an excuse for crime, or as affecting the validity of contracts or other acts, has never been decided. It has been decided, however, that hypnotism is not admissible as a defense to crime, where the accused is not shown to be susceptible to its influence;[4] and that the fact that a person was hypnotized does not render statements favorable to himself, made while in that state, admissible in evidence.[5]

[4] *People* v. *Worthington*, 105 Cal. 166, 38 Pac. 689.

[5] *People* v. *Ebanks*, 117 Cal. 652, 40 L. R. A. 269, 49 Pac. 1049.

CHAPTER XXI.

ABORTION.

524. How far a subject of medical jurisprudence.—A physician who is grossly negligent, causing the death of a patient, is guilty of homicide. But this does not make the general subject of homicide a part of medical jurisprudence; and no more does the fact that, because of the knowledge and skill of the physician and surgeon in that particular direction, he is more liable than others to be called on to produce an abortion, make the general subject of abortion a part of medical jurisprudence. The only part of the subject of abortion that properly belongs to medical jurisprudence is that with reference to medical evidence derived from medical examinations in cases of miscarriage or abortion, and the opinion of medical experts with reference thereto, and the question whether and how far a physician has a legal right to produce miscarriage or abortion to save the life, or benefit the health, of the mother.

525. Medical evidence as to.—Medical evidence with reference to abortion is governed by the rules as to competency and admissibility applicable to other subjects. The results of a post-mortem examination are admissible in evidence, when death follows, as tending to show the *corpus delicti,* as well as pregnancy, and the general condition, and the fact that death resulted from the abortion.[1] And the

[1] *People* v. *Aikin*, 66 Mich. 460, 11 Am. St. Rep. 512, 33 N. W. 821; *Hauk* v. *State*, 148 Ind. 238, 46 N. E. 127, 47 N. E. 465.

And evidence of a physician in a prosecution for abortion which caused death, as to what he observed at an examination made by him, and as to the manner in which the miscarriage was produced, is not objectionable as preceding proof of the *corpus delicti*. *Hauk* v. *State*, 148 Ind. 238, 46 N. E. 127, 47 N. E. 465.

And a medical examination of a deceased person, showing two openings from the uterus into the abdominal cavity, together with proof of delay in calling a physician, and of a statement of the deceased, made just before her sickness, of her purpose to produce an abortion, is sufficient to go to the jury in a prosecution for abortion, on the question of the *corpus delicti*. *Seifert* v. *State*, 160 Ind. 464, 98 Am. St. Rep. 340, 67 N. E. 100.

testimony of a physician with relation to the condition of an alleged victim of abortion is not rendered inadmissible by the fact that it was based on an examination made some time after the act in question.[2] And surgical instruments and appliances adapted to use in producing abortion, found in the possession of a physician charged therewith, may be put in evidence as tending to show means and opportunity to commit the offense;[3] the effect of such evidence being a question for the jury.[4] And medical experts are competent to testify as to the character of such instruments and appliances.[5] Physicians have also been permitted to give opinions as to pregnancy,[6] and as to causes of abortion,[7] and as to the cause of death,[8] and as to the tendency of miscarriage to become habitual from repetition.[9] And the question as to the possibility of the performance by a woman of an act designed to cause her to miscarry is one outside of the range of common knowledge, and therefore a proper one for an expert.[10] And a physician who testified as an expert that he discovered no traces of abortion may properly be asked whether such traces would exist under certain circumstances, even though the existence of the stated circumstances is not proved.[11]

Expert witnesses called in a prosecution for abortion, however,

[2] *Com.* v. *Follansbee*, 155 Mass. 274, 29 N. E. 471.

[3] *Com.* v. *Brown*, 121 Mass. 69.

[4] *Ibid.*

[5] *Ibid.*

[6] *State* v. *Smith*, 32 Me. 369, 54 Am. Dec. 578.

[7] *Slattery* v. *People*, 76 Ill. 217; *Carter* v. *State*, 2 Ind. 617; *State* v. *Ginger*, 80 Iowa, 574, 46 N. W. 657; *Williams* v. *State* (Tex. Civ. App.) 19 S. W. 897; *McKeon* v. *Chicago, M. & St. P. R. Co.* 94 Wis. 477, 35 L. R. A. 252, 59 Am. St. Rep. 909, 69 N. W. 175. And see *Hauk* v. *State*, 148 Ind. 238, 46 N. E. 127, 47 N. E. 465.

And proof that the accused in a prosecution for homicide in the commission of abortion was unskilful, by persons acquainted with his skill, is competent in rebuttal of testimony to show that the act in question had been performed by a person unacquainted with that class of operations, upon the theory that the act in question must have been done by a person not a physician. *Clark* v. *Com.* 111 Ky. 443, 63 S. W. 740.

[8] *State* v. *Smith*, 32 Me. 369, 54 Am. Dec. 578.

[9] *Slattery* v. *People*, 76 Ill. 217.

And a medical witness is competent to give his opinion in a prosecution for homicide in the commission of an abortion, as to whether a woman would be more susceptible to shock if the operation were performed on her away from home, in a doctor's office, with no one near to care for her, under fear of exposure and mental anguish, than had she been at home, and the operation had been performed to relieve her of some trouble, there being no ground to fear exposure. *Clark* v. *Com.* 111 Ky. 443, 63 S. W. 740.

[10] *Com.* v. *Leach*, 156 Mass. 99, 30 N. E. 163; *State* v. *Lee*, 65 Conn. 265, 27 L. R. A. 498, 48 Am. St. Rep. 202, 30 Atl. 1110.

And where medical testimony has been given in a prosecution for an attempt to procure a miscarriage, that it is impossible for a woman to perform a specified operation upon herself designed to cause a miscarriage, it is proper to contradict such evidence by showing that, as a matter of fact, the thing has been done. *Com.* v. *Leach*, 156 Mass. 99, 30 N. E. 163.

[11] *Bathrick* v. *Detroit Post & Tribune Co.* 50 Mich. 629, 45 Am. Rep. 63, 16 N. W. 172.

cannot give their opinion that a crime has been committed, founded upon the narrative of the woman of previous facts, which narrative is itself inadmissible and remains undisclosed.[12] And a nonexpert witness cannot give an opinion as to the occurrence of a miscarriage, without proof of a careful examination, or without stating facts upon which the opinion was based.[13] Physicians who have been in general practice for some time are competent and qualified witnesses with relation to abortion.[14]

526. Justification by necessity.—It is a general rule independent of statute, that the act of a physician in aiding a miscarriage is not unlawful, where the miscarriage was the inevitable result of other causes.[15] And the act is justified where the circumstances were such as to induce in the mind of a competent person the belief that a miscarriage was necessary to preserve the life of the mother.[16] And the statutes of many of the states penalize the causing, or attempting to cause, an abortion, unless necessary to preserve the life of the woman, or unless advised by a designated number of physicians to be necessary for that purpose; and under such statutes there is no offense where the act was necessary to preserve her life,[17] or when it was advised by the required number of physicians to be necessary for such purpose, the absence of both the necessity and the advice being an essential ingredient in the crime.[18] The physician by whom the deed is done, however, cannot act as his own adviser in the matter.[19] And an indictment under the statute must not only allege that the act was not necessary to preserve the woman's life, but must also negative the advice of physicians;[20] and such averments cannot be inserted as an amendment after demurrer.[21]

[12] *People* v. *Murphy*, 101 N. Y. 126, 54 Am. Rep. 661, 4 N. E. 326.

[13] *People* v. *Olmstead*, 30 Mich. 431.

[14] *Com.* v. *Thompson*, 159 Mass. 56, 33 N. E. 1111.

And a physician who attended a woman in her last illness, and who was present and assisted at the delivery in a case of miscarriage occurring a week before her death, and who examined the patient before the delivery, and discovered physical lacerations of some kind, cannot be said to be incompetent to give an opinion that her death was caused by an abortion performed with instruments when the patient was advanced in pregnancy, though he is not shown to have special scientific knowledge. *Ibid.*

[15] *Honnard* v. *People*, 77 Ill. 481.

[16] *State* v. *Glass*, 5 Or. 73; *Clark* v. *Com.* 111 Ky. 443, 63 S. W. 740.

[17] *State* v. *Stokes*, 54 Vt. 179; *State* v. *McIntyre*, 19 Minn. 93, Gil. 65.

[18] *State* v. *McIntyre*, 19 Minn. 93, Gil. 65.

Statutory provisions penalizing the employment of any means whatever to procure a miscarriage, unless the same is necessary to preserve the woman's life, modify the common-law offense, and must be considered as superseding the common law. *State* v. *Stokes*, 54 Vt. 179.

[19] *Hatchard* v. *State*, 79 Wis. 357, 48 N. W. 380.

[20] *Bassett* v. *State*, 41 Ind. 303; *Willey* v. *State*, 46 Ind. 363; *State* v. *Aiken*, 109 Iowa, 643, 80 N. W. 1073; *State* v. *McIntyre*, 19 Minn. 93, Gil. 65; *State* v.

The burden of proof rests with the state to show that the means used were not necessary to preserve the life of the woman in question;[22] and the absence of necessity may be determined from circumstantial evidence.[23] But the burden of proof as to advice of physicians would not fall within the rule controlling the production of proof as to negative matters in general, and would rest with the accused;[24] though it may be proved by a preponderance of the evidence, and need not be established beyond a reasonable doubt.[25] But either that the act was necessary to preserve the life of the mother, or that it was advised by physicians to be necessary for that purpose, is an equally good defense; and the destruction of the child need not have

Meek, 70 Mo. 355, 35 Am. Rep. 427; *State* v. *Stokes*, 54 Vt. 179.

And a statute making it manslaughter to procure, or attempt to procure, a miscarriage, unless the same is necessary to preserve the life of the mother, or is advised by two physicians to be necessary for such purpose, does not require that the advice shall be given at the time and place of the act in question; and an indictment is not sufficient, where it merely denies that the act was then and there advised. *State* v. *McIntyre*, 19 Minn. 93, Gil. 65.

And a statute providing that no indictment shall be deemed invalid for want of averments of any matter not necessary to be proved does not apply to negative averments, the burden of disproving which rests with the defendant, and which are to be taken as true unless disproved; but it applies to immaterial averments which it is unnecessary for the state in any way to establish by legal presumption or otherwise, and does not, therefore, cure an indictment for abortion failing to allege the absence of the advice of physicians that it was necessary for the purpose of saving the woman's life. *State* v. *Meek*, 70 Mo. 355, 35 Am. Rep. 427.

[21]*State* v. *Stokes*, 54 Vt. 179.

[22]*State* v. *Clements*, 15 Or. 237, 14 Pac. 410; *State* v. *Glass*, 5 Or. 73; *Moody* v. *State*, 17 Ohio St. 111; *State* v. *Aiken*, 109 Iowa, 643, 80 N. W. 1073.

In *Bradford* v. *People*, 20 Hun, 309, however, it was held that in prosecutions for procuring abortions by the use of instruments,—especially when employed by a professional man,—proof that it was necessary for the preservation of the mother or the child, as contemplated by the statute, should be made by the physician or expert using the instruments.

[23]*Bradford* v. *People*, 20 Hun, 309. And see *Clark* v. *Com.* 111 Ky. 443, 63 S. W. 740.

But proof that the woman whose miscarriage was produced went with her mother to the office of a physician, and requested the performance of an abortion, and that she walked to the office of the physician two or three times, there being no evidence with reference to the cause of her condition, and nothing to indicate the condition of her health, is not sufficient to satisfy the burden of proof resting with the state to show that the miscarriage was not necessary to save her life. *State* v. *Aiken*, 109 Iowa, 643, 80 N. W. 1073.

And proof that a physician in his professional treatment of a pregnant woman had used means with intent to destroy the child, and that the death of the child or mother was thereby produced, is not evidence that the treatment was not necessary to preserve the life of the mother. *State* v. *Clements*, 15 Or. 237, 14 Pac. 410.

[24]*Moody* v. *State*, 17 Ohio St. 111; *Hatchard* v. *State*, 79 Wis. 357, 48 N. W. 380.

[25]*Hatchard* v. *State*, 79 Wis. 357, 48 N. W. 380; *State* v. *Glass*, 5 Or. 73; *Howard* v. *People*, 185 Ill. 552, 57 N. E. 441.

The degree of certainty with which the nonnecessity of a miscarriage to save the life of the mother is required to be shown is such that no competent person can be presumed to have believed the act necessary. *State* v. *Glass*, 5 Or. 73.

been both necessary, and advised by physicians.[26] And statutes of this class apply only in cases in which the death of the mother could reasonably be expected to result from natural causes unless the child was destroyed, and do not apply to a case in which the mother threatened suicide unless she was relieved from her trouble.[27]

[26] *State* v. *Fitzporter*, 93 Mo. 390, 6 S. W. 223.

And it will not be taken on appeal in a prosecution for abortion that there was any question of the necessity of resorting to abortion to save the life of the mother or child, where the bill of exceptions does not purport to contain the whole case. *State* v. *Owens*, 22 Minn. 238.

[27] *Hatchard* v. *State*, 79 Wis. 357, 48 N. W. 380.

CHAPTER XXII.

INTERFERENCE WITH DEAD BODIES.

527. Rights and liabilities of physicians.—Grave robbing, or the removal of dead bodies from their graves or other resting places, is usually made a criminal act by law; and the criminality of taking up dead bodies is not affected by the fact that it was done by a physician for the purpose of dissection.[1] And while it may be that in a proper case the court, in the interests of justice, could and should require the exhuming and examination of a dead body, where there is strong reason to believe that without such examination a fraud is liable to be accomplished, and every known method of exposing it has been exhausted, such an order should only be made upon a strong showing of the probability of such fraud, and the impossibility of otherwise exposing it.[2] A duly qualified medical expert who made an autopsy of the body of a deceased person, however, is not prevented from testifying as to what he found on such autopsy by the fact that in making it he proceeded without authority, or did not follow the prescribed course.[3] And a post-mortem examination made by a medical examiner in the exercise of his duty when required by a coroner does not render him liable for mutilating the body without consent of the family of the deceased, if the work was done with ordinary decency, and without wantonly disfiguring the body.[4] And where the ordi-

[1] *King* v. *Lynn*, 2 T. R. 734, 1 Leach, C. L. 497.

But the removal from her grave, by a physician, of the body of a girl for the purpose of obtaining a small piece of her thigh bone, which had been broken, for use in evidence on an issue of malpractice against the physician in improperly setting the bone, is not a removal of a body from the grave for the purpose of dissection, or for mere wantonness, within the meaning of a statutory provision punishing such a removal by imprisonment. *Rhodes* v. *Brandt*, 21 Hun, 1.

[2] *Grangers' L. Ins. Co.* v. *Brown*, 57 Miss. 308, 34 Am. Rep. 446.

[3] *Com.* v. *Taylor*, 132 Mass. 261.

And on the issue whether or not a physician making an autopsy should have cut open the stomach, he may testify that he had been told that the deceased had been drinking on the day of his death, as bearing on the scope of his investigation. *Manufacturers' Acci. Indemnity Co.* v. *Dorgan*, 22 L. R. A. 620, 7 C. C. A. 581, 16 U. S. App. 290, 58 Fed. 945.

[4] *Young* v. *College of Physicians & Surgeons*, 81 Md. 358, 31 L. R. A. 540, 32 Atl. 177.

nances of a city require a physician's certificate of the cause of death before burial of a deceased person, and the circumstances surrounding the death of the person rendered a post-mortem examination necessary to enable the attending physician to certify to the cause of death, he is not liable in damages to the heirs of the deceased for properly making such an examination.[5]

But a physician is relieved from liability for making a medical examination without the consent of the proper party, only when it is authorized by law, and done in a skilful and proper manner.[6] And though a father has no right of property in the dead body of his child, he has a right of possession for the purpose of burial or other lawful disposition, and may maintain an action against physicians or others for performing an autopsy upon the body of his child without his consent.[7] And a widow is entitled to possession of the dead body of her husband in the condition it was when death supervened, for the purpose of burial; and may maintain an action for damages against a physician performing, or assisting in performing, an autopsy on such body without her consent, and without authority of law;[8] and may recover for mental suffering directly and proximately resulting from the wrongful act, though no apparent damage is proved.[9] And the same rule applies to the rights of the husband against physicians maltreating the body of his wife, to whom it had been delivered for the purpose of examining the throat.[10] The question of the right to interfere with the body of a deceased insured person in elsewhere considered.[11]

[5] *Cook* v. *Walley*, 1 Colo. App. 163, 27 Pac. 950.

[6] See *Young* v. *College of Physicians & Surgeons*, 81 Md. 358, 31 L. R. A. 540, 32 Atl. 177.

And testimony of a funeral director that he never received a body after post-mortem examination that was in condition for the family to see it, without its being prepared, is admissible in an action against a physician employed by a coroner, for unlawfully cutting and mutilating a body on post-mortem examination. *Ibid.*

[7] *Burney* v. *Children's Hospital*, 169 Mass. 57, 38 L. R. A. 413, 61 Am. St. Rep. 273, 47 N. E. 401.

[8] *Foley* v. *Phelps*, 1 App. Div. 551, 37 N. Y. Supp. 471; *Larson* v. *Chase*, 47 Minn. 307, 14 L. R. A. 85, 50 N. W. 238.

[9] *Larson* v. *Chase*, 47 Minn. 307, 14 L. R. A. 85, 50 N. W. 238.

[10] ——— v. ——— (Ohio) 4 Am. Law. Times, 127.

[11] *Post*, § 538.

CHAPTER XXIII.

INSURANCE.

528. Scope of chapter.—A large part of the litigation growing out of life insurance arises from alleged breaches of warranty, or alleged false representations as to health or physical condition. If this were treated as properly belonging to medical jurisprudence, it would involve the incorporation in this work of a large part of the law of insurance. Both for the purpose of brevity, therefore, and because it is thought that medical jurisprudence legitimately includes no more, this chapter is confined to a discussion of the relations between the insurer, the medical examiner, and the insured; and of the questions, who are usual medical attendants, and what constitutes medical attendance, and what constitutes health, sickness, disease, or serious injury within the meaning of warranties or representations in an insurance policy, and of the right of an insurer to a medical examination of the body of a deceased insured person for the purpose of ascertaining the cause of his death.

529. Relations between insurer, medical examiner, and insured.—A medical examiner of an insurance company, required to give answers to certain questions asked with reference to applicants for insurance, is the agent of the insurance company for the purpose of reporting answers to such questions; and where the applicant answers such questions truthfully and in entire good faith, and the examiner either inadvertently or purposely inserts erroneous answers, such answers must be taken as the declaration of the insurance company, and not of the

applicant, so that the company will be estopped from insisting on their falsity.[1] And where the examining physician assumes to give answers to the questions asked, upon his own knowledge of the facts, or gives his opinion based upon the facts, the answers as given are conclusive upon the company;[2] and the rule is the same where the medical examiner knows the answers to be false, though they are the answers of the applicant;[3] and the rule is not affected, in such case, by the fact that the applicant warranted the truth of his answers.[4] So, the examining physician of an insurance company is the agent of the company, and not of the applicant for insurance; so that, where his certificate shows the applicant to have been in good health, it is competent evidence of that fact, and can only be rebutted by testimony establishing that he was deceived either by false statements, or by the

[1] *Grattan* v. *Metropolitan L. Ins. Co.* 80 N. Y. 281, 36 Am. Rep. 617; *Providence Life Assur. Soc.* v. *Reutlinger*, 58 Ark. 528, 25 S. W. 835; *Peterson* v. *Des Moines Life Asso.* 115 Iowa, 668, 87 N. W. 397; *Mutual Reserve Fund Life Asso.* v. *Ogletree*, 77 Miss. 7, 25 So. 869; *Endowment Rank, K. of P.* v. *Cogbill*, 99 Tenn. 28, 41 S. W. 340; *Caruthers* v. *Kansas Mut. L. Ins. Co.* 108 Fed. 487; *Mutual Benefit L. Ins. Co.* v. *Robison*, 22 L. R. A. 325, 7 C. C. A. 444, 19 U. S. App. 266, 58 Fed. 723.

And this is the case, notwithstanding a recital in the application that the medical examiner should be held to be the agent of the applicant as to all answers and statements made by him; since such recital cannot abrogate or reverse a well-established rule of law. *Endowment Rank. K. of P.* v. *Cogbill*, 99 Tenn. 28, 41 S. W. 340.

[2] *Pudritzky* v. *Supreme Lodge, K. of H.* 76 Mich. 428, 43 N. W. 373; *Higgins* v. *Phoenix Mut. L. Ins. Co.* 74 N. Y. 6; *Lueder* v. *Hartford Life & Annuity Ins. Co.* 4 McCrary, 149, 12 Fed. 465; *Langdon* v. *Union Mut. L. Ins. Co.* 14 Fed. 272.

But it is not incompetent in an action upon an insurance policy to prove by parol the actual transaction between the applicant and the medical examiner, without reforming the contract or asking for equitable relief, where it is shown that fair and truthful statements of the applicant were erroneously given by the medical examiner through inadvertence. *Grattan* v. *Metropolitan L. Ins. Co.* 80 N. Y. 281, 36 Am. Rep. 617.

[3] *Franklin L. Ins. Co.* v. *Galligan*, 71 Ark. 295, 73 S. W. 102; *Weimer* v. *Economic Life Asso.* 108 Iowa, 451, 79 N. W. 123.

But aside from any statutory restriction, it is competent for parties to a contract for insurance to make the truth of statements made to the medical examiner in an application material to the risk, without regard to whether or not they affect the risk. *Peterson* v. *Des Moines Life Asso.* 115 Iowa, 668, 87 N. W. 397.

And in *Caruthers* v. *Kansas Mut. L. Ins. Co.* 108 Fed. 487, it was held that the rule that false answers in an application for insurance will not avoid the policy, if the medical examiner who took them had knowledge at the time of the true facts, does not apply where it appears that the answers as written down by the medical examiner were as the assured gave them.

[4] *Equitable L. Ins. Co.* v. *Hazlewood*, 75 Tex. 338, 7 L. R. A. 217, 16 Am. St. Rep. 893, 12 S. W. 621; *Providence Life Assur. Soc.* v. *Reutlinger*, 58 Ark. 528, 25 S. W. 835.

But the placing of the signature of an applicant for life insurance at the beginning of the paper containing his medical examination is for the purpose of identification, and not for the purpose of binding him as to the truth of the contents of the paper. *Equitable L. Ins. Co.* v. *Hazlewood*, 75 Tex. 338, 7 L. R. A. 217, 16 Am. St. Rep. 893, 12 S. W. 621.

suppression of facts without a knowledge of which he could not have come to a correct conclusion as to the applicant's condition.[5]

A medical examiner of an insurance company, however, is not an agent of the company, by virtue of his position, with reference to the application of insurance; and where, upon being called upon to make a medical examination, he fills up the entire application, inserting untrue answers, the company is not responsible for his acts, and the policy is invalidated thereby;[6] though an authorized medical examiner will be deemed to have authority to take an application for insurance, where he received the blank application from an authorized agent recognized as such in the policy itself.[7] And while an applicant for insurance is not bound to exercise supervision over the writing down of his answers, if he knows that his answers have been incorrectly written down, it becomes his duty to see that proper corrections are made; and if he fails to do so, he will be estopped from disputing them as written, though recovery upon the policy is thereby defeated.[8]

So, where a medical examiner selected by an insurer gives a certificate that the applicant is a fit subject for insurance when he knows he is afflicted with diseases which render him unfit, and the insurer acts upon that certificate without further inquiry and makes the insurance, the fraud and misrepresentations will not be regarded as the act of the insured alone.[9] And it is fraud in procuring a certificate or report of a medical examiner, and not fraud in procuring the policy, which may be shown for the purpose of defeating the policy, under a statute providing that the certificate of a medical examiner of an

[5] *Holloman* v. *Life Ins. Co.* 1 Woods. 674, Fed. Cas. No. 6,623; *McGowan* v. *Supreme Court, I. O. F.* 104 Wis. 173, 80 N. W. 603; *Weimer* v. *Economic Life Asso.* 108 Iowa, 451, 79 N. W. 123; *Stewart* v. *Equitable Mut. Life Asso.* 110 Iowa, 528, 81 N. W. 782.

[6] *Flynn* v. *Equitable Life Assur. Soc.* 67 N. Y. 500, 23 Am. Rep. 134.

And the indorsement of a medical examiner, rejecting an application for insurance, is not competent evidence of the rejection of the application. *Pudritzky* v. *Supreme Lodge, K. of H.* 76 Mich. 428, 43 N. W. 373.

[7] *Flynn* v. *Equitable L. Ins. Co.* 78 N. Y. 568, 34 Am. Rep. 561.

[8] *Equitable L. Ins. Co.* v. *Hazlewood*, 75 Tex. 338, 7 L. R. A. 217, 16 Am. St. Rep. 893, 12 S. W. 621; *Providence Life Assur. Soc.* v. *Reutlinger*, 58 Ark. 528, 25 S. W. 835; *Grattan* v. *Metropolitan L. Ins. Co.* 92 N. Y. 274, 44 Am. Rep. 372.

And where, after the delivery of an insurance policy, the insured discovers that a fraud has been perpetrated on him and on the company by the medical examiner in inserting false answers in the medical examination, it is his duty to make the fact known to the company; since he could not hold the policy without approving the action of the medical examiner, and thus becoming a participant in the fraud. *Providence Life. Assur. Soc.* v. *Reutlinger*, 58 Ark. 528, 25 S. W. 835.

[9] *Edington* v. *Mutual L. Ins. Co.* 5 Hun, 1.

Where a contract of insurance is based upon statements of the applicant's physician, as well as his own, both statements should be considered in determining whether or not there was fraud. *Miller* v. *Mutual Ben. L. Ins. Co* 31 Iowa, 216, 7 Am. Rep. 122.

insurance company, that an applicant is a fit subject for insurance, estops the company from asserting that the assured was not in condition of health required by the policy, unless the same was produced through fraud or deceit of the assured.[10]

530. Who are the family physicians, or usual medical attendants.—A medical attendant is a physician to whom the care of a sick person has been intrusted;[11] and the term "family physician," or "usual medical attendant," used in an application for insurance, is without technical signification, and means the physician who usually attends, and is consulted by the members of the family of the applicant in his professional capacity.[12] A physician who merely makes a casual prescription for a friend on the street or elsewhere is not such an attendant, within the meaning of a representation or warranty with reference thereto in an application for insurance.[13] But to constitute a medical attendant within the meaning of such provision, it is not necessary that the physician should attend the patient at his home; an attendance at his own office is sufficient.[14] And it is not necessary that the physician should invariably attend and be consulted by each and all of the members of the family of the applicant.[15] The family physician of the father of an applicant for insurance will be regarded as his usual medical attendant, where he had called upon such physician yearly for many years for advice or treatment, though others had attended him occasionally, and another attended him in his last illness.[16] And the physician usually attending and consulted by the wife and children of an applicant for insurance is his family physician,

[10] *Peterson* v. *Des Moines Life Asso.* 115 Iowa, 668, 87 N. W. 397.

And the medical examiner contemplated by such a statutory provision is the person who makes the actual examination, and reports on the applicant's condition as to whether or not he is a proper risk. *Ibid.*

[11] *Edington* v. *Mutual L. Ins. Co.* 5 Hun, 1.

[12] *Price* v. *Phoenix Mut. L. Ins. Co.* 17 Minn. 497, 10 Am. Rep. 166, Gil. 473.

But a statement by a physician in proofs of death of an insured person, that he had been his usual medical attendant for five years, does not establish the fact that he was his usual medical attendant at the time the policy was taken, though within the five years; since the assured was not entirely responsible for the statements of the physician. *Cushman* v. *United States L. Ins. Co.* 70 N. Y. 72.

[13] *Edington* v. *Mutual L. Ins. Co.* 5 Hun, 1.

[14] *Cushman* v. *United States L. Ins. Co.* 70 N. Y. 72.

[15] *Price* v. *Phoenix Mut. L. Ins. Co.* 17 Minn. 497, 10 Am. Rep. 166, Gil. 473.

And a physician who had attended a woman for several years up to her marriage is her medical attendant within the meaning of an interrogatory as to her usual medical attendant, in an application for insurance made a short time after her marriage; though the medical attendant of her husband's family had on one or two occasions, when called for other members of the family, prescribed for her for a cold or some other trifling matter. *Huckman* v. *Fernie*, 3 Mees. & W. 505, 1 Horn & H. 149, 7 L. J. Exch. 163, 2 Jur. 444.

[16] *Cushman* v. *United States L. Ins. Co.* 70 N. Y. 72.

though such physician did not usually attend, and was not consulted by, the applicant himself.[17] Where it appears that more than one physician had acted for an applicant for insurance on different occasions, the question as to who was his family physician, or his usual medical attendant, within the meaning of a representation or warranty in an application for insurance, is one of fact, for the jury.[18] And an answer naming the one who attended him during his most recent illness cannot be regarded as false.[19]

531. What constitutes medical attendance.—The prevailing rule would seem to be that a calling at a doctor's office to relieve a mere temporary indisposition, not serious in its nature, or the calling by the doctor at the patient's home for the same purpose, cannot be construed as an attendance within the meaning of a representation or warranty in an application for insurance, that the applicant had not been attended by a physician; such attendance must be for some disease or ailment of importance, and not for an indisposition of a day or two, trivial in its nature, such as all persons are liable to, though considered to be in good health.[20] And going to a hospital by appointment to have a foreign substance removed from the eye does not constitute treatment in a hospital within the meaning of a representation in an application for insurance that the applicant so going

[17] *Price* v. *Phoenix Mut. L. Ins. Co.* 17 Minn. 497, 10 Am. Rep. 166, Gil. 473.

[18] *Higgins* v. *Phoenix Mut. L. Ins. Co.* 74 N. Y. 6; *Fitch* v. *American Popular L. Ins. Co.* 59 N. Y. 557, 17 Am. Rep. 372; *Scoles* v. *Universal L. Ins. Co.* 42 Cal. 523.

[19] *Franklin L. Ins. Co.* v. *Galligan*, 71 Ark. 295, 73 S. W. 102.

And testimony of a physician in an action on an insurance policy that, at the time he made the medical examination of the assured, the assured stated to him that he was the assured's physician, if inadmissible, is harmless, where it is substantially the same statement as the assured made in his application. *Cushman* v. *United States L. Ins. Co.* 70 N. Y. 72.

[20] *Plumb* v. *Penn. Mut. L. Ins. Co.* 108 Mich. 94, 65 N. W. 611; *Hann* v. *National Union*, 97 Mich. 513, 37 Am. St. Rep. 365, 56 N. W. 834; *Brown* v. *Metropolitan L. Ins. Co.* 65 Mich. 306, 8 Am. St. Rep. 894, 32 N. W. 610; *Blumenthal* v. *Berkshire L. Ins. Co.* (Mich.) 10 Det. L. N. 429, 96 N. W. 17; *Franklin L. Ins. Co.* v. *Galligan*, 71 Ark. 295, 73 S. W. 102; *Billings* v. *Metropolitan L. Ins. Co.* 70 Vt. 477, 41 Atl. 516; *Hubbard* v. *Mutual Reserve Fund L. Ins. Co.* 40 C. C. A. 665, 100 Fed. 719. And see *Crosby* v. *Security Mut. L. Ins. Co.* 86 App. Div. 89, 83 N. Y. Supp. 140.

And a breach of warranty in an application for insurance, that the applicant had not, during a stated period, had any sickness, or employed or consulted a physician, is not shown by proof that within the time a physician had given him advice and medicine, where it does not appear whether the advice and medicine were for him personally, or for his family. *Mowry* v. *World Mut. L. Ins. Co.* 7 Daly, 321.

But insurance issued upon an application containing a warranty that the plaintiff had not been attended by a physician for any serious disease or complaint is invalidated by the fact that in the time covered by the warranty he had an operation for gall stones performed upon him. *Weinstraub* v. *Metropolitan L. Ins. Co.* 27 Misc. 540, 58 N. Y. Supp. 295.

had never been under such treatment.[21] Nor does a question in an application for insurance as to whether the applicant had employed or consulted any physician mean whether he had ever employed a physician; it consists of an inquiry referring to recent date, and should be construed as calling for information as to whether or not the physician had been consulted with reference to the question of insurance.[22] And whether a trouble affected the health so as to be within a representation that the applicant had not consulted with a physician in regard to his health is a question for expert testimony.[23] And the question whether an applicant should have disclosed given transactions with a physician is one, not of law for the court, but of fact for the jury.[24]

It has been held, however, that the purpose of a question as to whether an applicant for insurance had employed a physician is to ascertain the name of a person from whom information affecting the risk could be derived; and that a false answer that the applicant had never called upon a physician, warranted to be true, invalidates the policy without reference to the nature of the ailment or consultation.[25] And the rule has been laid down, and seems to be established in Massachusetts at least, that a person who supposes himself in need of a physician, and goes to one for the purpose of consulting him, and has an interview with him, answering such inquiries as the physician deems pertinent, and receives aid and advice from him,—consults the physician, or is attended by him, within themeaning of a representation or warranty in an application for insurance as to consultation with a physician.[26] And prescribing, within such a repre-

[21] *Chinnery* v. *United States Industrial Ins. Co.* 15 App. Div. 515, 44 N. Y. Supp. 581.

[22] *World Mut. L. Ins. Co.* v. *Schultz*, 73 Ill. 586.

[23] *Brock* v. *United Moderns* (Tex. Civ. App.) 81 S. W. 340.

But statements made by an insured person to the effect that she had heart trouble, and was being treated for it, though inadmissible to establish the existence of heart disease, is competent, where the insurance was issued upon an application stating that she had not been attended by a physician for any serious disease or complaint, to show that she had knowledge that she had been treated for a serious disease. *Kipp* v. *Metropolitan L. Ins. Co.* 41 App. Div. 298, 58 N. Y. Supp. 494.

[24] *Hann* v. *National Union*, 97 Mich. 513, 37 Am. St. Rep. 365, 56 N. W. 834.

[25] *Providence Life Assur. Soc.* v. *Reutlinger*, 58 Ark. 528, 25 S. W. 839; *Metropolitan L. Ins. Co.* v. *McTague*, 49 N. J. L. 587, 60 Am. Rep. 661, 9 Atl. 766; *McCollum* v. *Mutual L. Ins. Co.* 55 Hun, 103, 8 N. Y. Supp. 249; *Horn* v. *Amicable Mut. L. Ins. Co.* 64 Barb. 81; *United Brethren Mut. Aid Soc.* v. *O'Hara*, 120 Pa. 256, 13 Atl. 932.

But an applicant for insurance who answers questions in the application, stating that he was treated by a named doctor for a particular disease, need not state the particular treatment practised. *Flynn* v. *Equitable L. Ins. Co.* 78 N. Y. 568, 34 Am. Rep. 561.

[26] *Cobb* v. *Covenant Mut. Ben. Asso.* 153 Mass. 176, 10 L. R. A. 666, 25 Am. St. Rep. 619, 26 N. E. 230; *White* v. *Provident Sav. Life Assur. Soc.* 163 Mass. 108, 27 L. R. A. 398, 39 N. E. 771; *Hubbard* v. *Mutual Reserve Fund*

sentation or warranty, is not limited strictly to giving directions for taking medicine, but includes anything done for the purpose of alleviating or relieving the condition complained of.[27]

532. What constitutes good or sound health. — The words "good health," or "sound health," as used in representations or warranties in applications for insurance are comparative, and mean a state of health free from any disease or ailment that seriously affects the general soundness or healthfulness of the system, though not necessarily free from mere temporary indisposition which does not tend to weaken or undermine the constitution.[28] Sickness which was merely a temporary disorder, having no bearing upon the general health of the insured, does not affect the validity of a policy issued on a warranty of good health.[29] A person is in good health within the meaning of such a condition, unless he is affected with a substantial attack of illness threatening his life,[30] or with a malady which has some bearing on the general health, as distinguished from a temporary derange-

Life Asso. 40 C. C. A. 665, 100 Fed. 719.

And one who goes to a hospital under the advice of a physician is an inmate of a hospital within the meaning of a warranty or representation in an insurance policy; though he did not go for treatment therein, but for the purpose of obtaining superior accommodations and services. *Farrell* v. *Security Mut. L. Ins. Co.* 60 C. C. A. 374, 125 Fed. 684.

[27]*Re Bruendl*, 102 Wis. 45, 78 N. W. 169.

And an instruction in an action upon an insurance policy, in response to a request to define the word "prescription," that if the insured went to a physician for the purpose of getting medical aid in a difficulty from which he was then suffering, or supposed himself to be suffering, and the physician, for the purpose of relief or cure, gave him medicine, it may be said that the physician prescribed for him; thus giving in a condensed way the evidence bearing upon the issue, it is not subject to objection as a charge upon the facts. *Cobb* v. *Covenant Mut. Ben. Asso.* 153 Mass. 176, 10 L. R. A. 666, 25 Am. St. Rep. 619, 26 N. E. 230.

[28]*Plumb* v. *Penn. Mut. L. Ins. Co.* 108 Mich. 94, 65 N. W. 611; *Hann* v. *National Union*, 97 Mich. 513, 37 Am. St. Rep. 365, 56 N. W. 834; *Galbraith* v. *Arlington Mut. L. Ins. Co.* 12 Bush, 29; *Jeffrey* v. *United Order*, G. C. 97 Me. 176; 53 Atl. 1102; *Peacock* v. *New York L. Ins. Co.* 20 N. Y. 293; *Barteau* v. *Phoenix Mut. L. Ins. Co.* 3 Thomp. & C. 576; *Metropolitan L. Ins. Co.* v. *Howle*, 62 Ohio St. 204, 56 N. E. 908; *Ohio Mut. Life Asso.* v. *Draddy*, 8 Ohio N. P. 140, 10 Ohio S. & C. P. Dec. 591; *Manhattan L. Ins. Co.* v. *Carder*, 27 C. C. A. 344, 42 U. S. App. 659, 82 Fed. 986; *Baldi* v. *Metropolitan Ins. Co.* 18 Pa. Super. Ct. 599; *Clemens* v. *Metropolitan L. Ins. Co.* 20 Pa. Super. Ct. 567; *Barnes* v. *Fidelity Mut. Life Asso.* 191 Pa. 618, 45 L. R. A. 264, 43 Atl. 341; *Woodmen of the World* v. *Locklin*, 28 Tex. Civ. App. 486, 67 S. W. 331; *Hutchison* v. *National Loan Fund Life Assur. Soc.* 7 Dunlop, B. & M. 467, 3 Bigelow, Life & Acci. Ins. Rep. 444; *Cheever* v. *Union Cent. Ins. Co.* 5 Ohio Dec. Reprint, 268, 5 Bigelow. Life & Acci. Ins. Rep. 458.

The fact that an insured person had received a wound does not establish that he was not in a good state of health subsequently, upon applying for insurance, where it appears that the consequence of his wound was inconvenience only, and that it was not dangerous to life. *Ross* v. *Bradshaw*, 1 W. Bl. 312.

[29]*North Western Mut. L. Ins. Co.* v. *Heimann*, 93 Ind. 24; *Provident Sav. Life Assur. Soc.* v. *Beyer*, 23 Ky. L. Rep. 2460, 67 S. W. 827.

[30]*Manhattan L. Ins. Co.* v. *Carder*, 27 C. C. A. 344, 42 U. S. App. 659, 82 Fed. 986.

ment of the functions of some organ.[31] Good health consists of freedom from all apparent disease or symptoms of disease, and an unconsciousness of any derangement of the functions by which health can be tested.[32] And proof of occasional attacks of dyspepsia yielding readily to treatment does not establish the falsity of a representation of sound health.[33] And an idiot or cripple may be of sound health.[34] And mere mental aberration does not necessarily constitute ill health; and the court cannot determine as a question of law that an insane person is necessarily in unsound physical condition, within the meaning of such representations or warranties.[35] But in construing the term "good health" in a policy of insurance or a condition of delivery thereof, regard must be had to the character of the risk assumed.[36] And no obligation is assumed by the insurer, under a policy requiring sound health at the time of its issue, where the insured was afflicted with a chronic disease to such an extent as to render him unable to pursue his usual calling, which, with subsequent resulting complications, led to his death.[37]

So, a warranty as to the health of a relative of the applicant means only that the relative inquired about has indicated in his appearance and actions no symptoms or traces of disease.[38] Questions as to health, in an action on a life insurance policy containing representations or warranties with reference thereto, are questions of fact to be determined by the jury under proper instructions.[39] And to what extent

[31] *Ibid.*

[32] *Conver* v. *Phoenix Mut. L. Ins. Co.* 3 Dill. 224, Fed. Cas. No. 3143; *Goucher* v. *Northwestern Traveling Men's Asso.* 20 Fed. 596; *Jeffrey* v. *United Order, G. C.* 97 Me. 176, 53 Atl. 1102.

And where a policy of life insurance was continued or renewed after forfeiture, upon the condition that the assured was then in good health, he had the right to suppose that the company attached the same meaning to the words "good health" as was attached in the original transaction. *Peacock* v. *New York L. Ins. Co.* 20 N. Y. 293, Affirming 1 Bosw. 338.

[33] *Morrison* v. *Wisconsin Odd Fellows Mut. L. Ins. Co.* 59 Wis. 162, 18 N. W. 13.

[34] *Robinson* v. *Metropolitan L. Ins. Co.* 1 App. Div. 269, 37 N. Y. Supp. 146.

Where the company at the time of delivery were apprised of the actual condition of the insured as to being an idiot and a cripple, the term "sound health" should be referred only to the physical condition apart from mental imbecility, or the fact of being a cripple. *Robinson* v. *Metropolitan L. Ins. Co.* 1 App. Div. 269, 37 N. Y. Supp. 146.

[35] *Jacklin* v. *National Life Asso.* 75 Hun, 595, 27 N. Y. Supp. 1112.

[36] *Manhattan L. Ins. Co.* v. *Carder*, 27 C. C. A. 344, 42 U. S. App. 659, 12 Fed. 986.

[37] *Volker* v. *Metropolitan L. Ins. Co.* 1 Misc. 374, 21 N. Y. Supp. 456.

A person who had chronic dyspepsia for twenty years, which continued to the date of her application for insurance, and which was severe and distressing at times, producing severe chronic constipation, is not a person in good health within the meaning of a representation of good health in an application for insurance. *Jeffrey* v. *United Order, G. C.* 97 Me. 176, 53 Atl. 1102.

[38] *Grattan* v. *Metropolitan L. Ins. Co.* 92 N. Y. 274, 44 Am. Rep. 372.

[39] *Woodward* v. *Iowa L. Ins. Co.* 104 Tenn. 49, 56 S. W. 1020; *Smith* v. *Metropolitan L. Ins. Co.* 183 Pa. 504, 38 Atl. 1038; *Barnes* v. *Fidelity Mut. Life*

mental disturbances will destroy or interfere with the functions of the body depends upon the circumstances of each case; and whether mania upon the part of an applicant for insurance is a breach of warranty of sound health is one of fact.[40]

533. What constitutes disease, sickness, or bodily infirmity generally.—Before any temporary ailment can be called a disease, within a warranty or representation against its existence in an application for insurance, it must be such as to indicate a vice in the constitution, or be so serious as to have some bearing upon the general health and continuance of life, or such as according to common understanding would be called a disease.[41] Disease or sickness or bodily infirmity, within the meaning of such warranties or representations, does not include ordinary diseases of the country which yield readily to medical treatment, and which, when ended, leave no permanent injury to the system.[42] Within these rules a cold is not a disease.[43] Nor is a fainting spell, produced by indigestion, or lack of proper food, causing a mere temporary disturbance or enfeeblement, a disease or bodily

Asso. 191 Pa. 618, 45 L. R. A. 264, 43 Atl. 341.

[40] *Jacklin* v. *National Life Asso.* 24 N. Y. Supp. 746; *Plumb* v. *Penn. Mut. L. Ins. Co.* 108 Mich. 94, 65 N. W. 611.

But the opinion of experts that the amount an insured person drank was sufficient to seriously impair a man's health is inadmissible in an action upon his insurance policy, which was issued upon the condition that the company should not be liable if he became so far intemperate as to seriously or permanently impair his health; since the question at issue is the effect upon the health of the insured, and not of some other man; and the capacity of different men for drink is different. *Odd Fellows Mut. L. Ins. Co.* v. *Rohkopp*, 94 Pa. 59.

[41] *North Western Mut. L. Ins. Co.* v. *Heimann*, 93 Ind. 24; *Cushman* v. *United States L. Ins. Co.* 70 N. Y. 72; *McGrath* v. *Metropolitan L. Ins. Co.* 6. N. Y. S. R. 376; *Rand* v. *Provident Sav. Life Assur. Soc.* 97 Tenn. 291, 37 S. W. 7; *Billings* v. *Metropolitan L. Ins. Co.* 70 Vt. 477, 41 Atl. 516; *Goucher* v. *Northwestern Traveling Men's Asso.* 20 Fed. 596; *Hutchison* v. *National Loan Fund Life Assur. Soc.* 7 Dunlop, B. & M. 467, 3 Bigelow, Life & Acci. Ins. Rep. 444.

Drunkenness is a habit, and not a disease, within the meaning of a representation in an application for insurance against the existence of disease. *Supreme Lodge, K. P.* v. *Taylor* (Ala.) 24 So. 247.

And an attempt to commit suicide by an applicant for insurance does not establish the existence of a mental or nervous disease or infirmity within the meaning of a warranty of the absence of such diseases in an application for insurance. *Mutual Reserve Fund Life Asso.* v. *Farmer*, 65 Ark. 581, 47 S. W. 850.

[42] *Holloman* v. *Life Ins. Co.* 1 Woods, 674, Fed. Cas. No. 6,623; *Pudritzky* v. *Supreme Lodge, K. of H.* 76 Mich. 428, 43 N. W. 373; *Breese* v. *Metropolitan L. Ins. Co.* 37 App. Div. 152, 55 N. Y. Supp. 775.

And a prescription in the handwriting of a physician is not admissible in evidence in an action on an insurance policy, for the purpose of showing that the insured suffered from a disease, contrary to a representation or warranty made by her, where it is not made to appear that the insured presented such prescription to be filled. *Plumb* v. *Penn Mut. L. Ins. Co.* 108 Mich. 94, 65 N. W. 611.

[43] *Metropolitan L. Ins. Co.* v. *McTague*, 49 N. J. L. 587, 60 Am. Rep. 661, 9 Atl. 766.

infirmity;[44] nor is an anemic murmur of the heart, indicating no structural defect, but coming from debility or weakness;[45] and near-sightedness is not a bodily infirmity.[46] Where, however, an ailment with which an applicant for insurance was afflicted was not a slight functional derangement or temporary complaint, but was sufficiently serious to have an important bearing upon his general health, a denial of the existence of the disease would invalidate the policy.[47] And tubercular affection of the lungs, or consumption, or tubercules upon the brain or the lungs, each constitutes a local disease within the meaning of a warranty of the nonexistence of such disease.[48] And tonsilitis is sickness within the meaning of a representation or warranty against the existence of sickness.[49]

These rules apply to representations and warranties with reference to the existence of disease in a particular organ, the inquiry calling for information as to anything in the nature of a disease of a character so well-defined and marked as to materially disturb or derange, for a time, its vital functions, but not calling for every instance of slight or accidental disorder or ailment affecting the organ, which left no trace of injury to the health;[50] but a disease of a particular organ within the meaning of such a warranty or representation includes all disease of that organ, though it was caused by a disease of

[44] *Manufacturers' Acci. Indemnity Co.* v. *Dorgan*, 22 L. R. A. 620, 7 C. C. A. 581, 16 U. S. App. 290, 58 Fed. 945.

In *Arnold* v. *Metropolitan L. Ins. Co.* 20 Pa. Super. Ct. 61, however, it was held that if a disease was of sufficient importance to induce the diseased person to consult a physician, it was of sufficient importance to be incorporated in an application for insurance made by him, so as to put the insurer upon guard, to enable it to make such inquiry and such examination as would satisfy it in regard to its character.

[45] *Manufacturers' Acci. Indemnity Co.* v. *Dorgan*, 22 L. R. A. 620, 7 C. C. A. 581, 16 U. S. App. 290, 58 Fed. 945.

But heart disease imports a malady of a serious character, and its existence in an applicant for insurance, representing that he had not been attended by a physician for any serious disease or complaint, is sufficient to invalidate the insurance. *Kipp* v. *Metropolitan L. Ins. Co.* 41 App. Div. 298, 58 N. Y. Supp. 494.

And the testimony of a nonexpert witness that an insured person was apparently in good health does not affect the weight to be given to the certificate of her attending physician, stating that he had treated her for heart disease before the date of the policy, where it does not appear that the heart disease was such as to be incompatible with good health, in the eyes of a layman. *Ibid.*

[46] *Cotten* v. *Fidelity & Casualty Co.* 41 Fed. 506; *Scoles* v. *Universal L. Ins. Co.* 42 Cal. 523.

[47] *Bancroft* v. *Home Benefit Asso.* 26 Jones & S. 492, 12 N. Y. Supp. 718, Affirmed in 126 N. Y. 682, 28 N. E. 250; *Holloman* v. *Life Ins. Co.* 1 Woods, 674, Fed. Cas. No. 6,623.

[48] *Scoles* v. *Universal L. Ins. Co.* 42 Cal. 523.

[49] *McCollum* v. *Mutual L. Ins. Co.* 55 Hun, 103, 8 N. Y. Supp. 249.

[50] *Connecticut Mut. L. Ins. Co.* v. *Union Trust Co.* 112 U. S. 250, 28 L. ed. 708, 5 Sup. Ct. Rep. 119.

And evidence that an applicant for insurance had been treated three times for congestion of the liver, but was not much sick, and was dressed every day and around more or less, and soon recovered, does not establish as matter of law a breach of warranty that he never had disease of the liver. *Cushman* v. *United States L. Ins. Co.* 70 N. Y. 72.

a different organ.[51] It is for the jury in an action upon a life insurance policy to determine from the evidence whether the insured had, during the time covered by his representation or warranty, any affection which could properly be called a sickness or disease within the meaning of these terms as used therein.[52]

534. Disease in accident insurance.—The question whether death resulted from accident within the meaning of an accident insurance policy, or from disease within an exception in such policy, depends upon whether or not the accident or the disease was the moving and proximate cause of the death.[53] If an independent disease supervenes upon the injury, and it is not necessarily produced by it, and causes death, it is death by disease, and not by accident;[54] and the rule is the same when the death resulted wholly from disease, though the disease then existed in a slumbering state, and was brought into activity by the accident.[55] And death will be regarded as resulting

[51]*Metropolitan L. Ins. Co.* v. *Rutherford*, 95 Va. 773, 30 S. E. 383.

[52]*Manhattan L. Ins. Co.* v. *Francisco*, 17 Wall. 672, 21 L. ed. 698; *Goucher* v. *Northwestern Traveling Men's Asso.* 20 Fed. 596; *Hubbard* v. *Mutual Reserve Fund Life Asso.* 40 C. C. A. 665, 100 Fed. 719.

[53]*Martin* v. *Equitable Acci. Asso.* 61 Hun, 467, 16 N. Y. Supp. 279; *Manufacturers' Acci. Indemnity Co.* v. *Dorgan*, 22 L. R. A. 620, 7 C. C. A. 581, 16 U. S. App. 290, 58 Fed. 945; *Sharpe* v. *Commercial Travelers' Mut. Acci. Asso.* 139 Ind. 92, 37 N. E. 353. And see *McCarthy* v. *Travelers' Ins. Co.* 8 Biss. 362, Fed. Cas. No. 8682; *Tennant* v. *Travellers' Ins. Co.* 31 Fed. 322.

Drowning is the moving, sole, and proximate cause of death resulting from falling into water, within the meaning of an accident insurance policy excepting disease from the risk, although the fall may have been due to disease. *Manufacturers' Acci. Indemnity Co.* v. *Dorgan*, 22 L. R. A. 620, 7 C. C. A. 581, 16 U. S. App. 290, 58 Fed. 945.

And hernia resulting in death will be regarded as the result of an accident within the meaning of an accident policy, where it was caused by a surgical operation without which death would inevitably have resulted; though hernia is one of the causes of death expressly excepted in the policy. *Travelers' Ins. Co.* v. *Murray*, 16 Colo. 296, 25 Am. St. Rep. 267, 26 Pac. 774.

And a question whether or not a person who died of peritonitis induced by a fall is to be regarded as having died from accident within the meaning of an accident policy, or from disease within the meaning of an exception in such policy, depends upon whether or not at the time of the fall he was suffering with the disease; if he was, then in the sense of the policy he died from the disease although the disease was aggravated and made fatal by the fall. *Freeman* v. *Mercantile Mut. Acci. Asso.* 156 Mass. 351, 17 L. R. A. 753, 30 N. E. 1013.

[54]*McCarthy* v. *Traveler's Ins. Co.* 8 Biss. 362, Fed. Cas. No. 8,682; *Smith* v. *Accident Ins. Co.* L. R. 5 Exch. 302, 39 L. J. Exch. N. S. 211, 22 L. T. N. S. 861, 18 Week. Rep. 1107; *Isitt* v. *Railway Passengers Assur. Co.* L. R. 22 Q. B. Div. 504, 58 L. J. Q. B. N. S. 191, 60 L. T. N. S. 297, 37 Week. Rep. 477.

And an accident insurance policy insuring against accident, but providing that it shall not apply unless the injury is the proximate and sole cause of the disability or death, and that the accident shall be the sole cause of death, is operative only when the accident is the direct and sole cause of death independently of any other cause; and if death results wholly or in part from the supervening of disease or other cause, the insurer is not liable. *Whitehouse* v. *Travelers Ins. Co.* 7 Ins. L. J. 23.

[55]*McCarthy* v. *Travelers' Ins. Co.* 8 Biss. 362, Fed. Cas. No. 8,682.

from the disease, where the disease was the cause of the accident, and the exception was as to death caused directly or indirectly by disease.[56] Death resulting from sunstroke or heat prostration, in the usual course of the avocation of the insured person, is not an accident, but is death from disease;[57] and so is death resulting from accidental contact with putrid animal matter containing poisonous bacteria.[58] And one who dies from an overdose of opium administered by himself for convulsions dies from medical treatment for disease, and not from accident.[59]

Where an accident causes disease, however, and the disease results in death, the death is regarded as accidental, and not as death by disease within the meaning of an exception in an accident insurance policy.[60] And where death is produced by blood poisoning occasioned by inoculation into a wound of a poisonous substance at the time the wound was made, so that it was in fact a part of the accident, death is attributable to accident, and not to blood poisoning;[61] and so is death resulting from a fall having been caused by a fit.[62] Whether or not the accident in such cases was the proximate and direct cause

[56] *Sharpe* v. *Commercial Travelers' Mut. Acci. Asso.* 139 Ind. 92, 37 N. E. 353; *Manufacturers' Acci. Indemnity Co.* v. *Dorgan*, 22 L. R. A. 620, 7 C. C. A. 581, 16 U. S. App. 290, 58 Fed. 945.

And evidence in an action upon an accident insurance policy covering injury, but not disease, as to the state of health of the deceased from his infancy to the time of his last sickness, and as to the health of his parents, is competent and important. *McCarthy* v. *Traveler's Ins. Co.* 8 Biss. 362, Fed. Cas. No. 8,682.

[57] *Dozier* v. *Fidelity & C. Ins. Co.* 46 Fed. 446, 13 L. R. A. 114; *Sinclair* v. *Maritime Passengers' Assur. Co.* 3 El. & El. 478, 30 L. J. Q. B. N. S. 77, 7 Jur. N. S. 367, 4 L. T. N. S. 15, 9 Week. Rep. 342.

[58] *Bacon* v. *United States Mut. Acci. Asso.* 123 N. Y. 304, 9 L. R. A. 617, 20 Am. St. Rep. 748, 25 N. E. 399.

[59] *Bayless* v. *Travellers' Ins. Co.* 14 Blatchf. 143, Fed. Cas. No. 1,138.

And death by drinking poison in mistake for medicine which the insured was in the habit of taking is death by medical treatment rendered necessary by disease, within the meaning of an application in an accident insurance policy, and not death by accident. *Cole* v. *Accident Ins. Co.* 61 L. T. N. S. 227.

[60] *North American Life & Acci. Ins. Co.* v. *Burroughs*, 69 Pa. 43, 8 Atl. 212; *Fitton* v. *Accidental Death Ins. Co.* 17 C. B. N. S. 122, 34 L. J. C. P. N. S. 28.

And where an insured person fell and dislocated his shoulder, and was taken home and put to bed, and died, without having left his bedroom or his bed except for necessary purposes, from pneumonia resulting from cold, he dies from the effect of the injury, within the meaning of a policy insuring against injury caused by accident, where he would not have died, as and when he did, if it had not been for the accident. *Isitt* v. *Railway Passengers Assur. Co.* L. R. 22 Q. B. Div. 504, 58 L. J. Q. B. N. S. 191, 60 L. T. N. S. 297, 37 Week. Rep. 477.

[61] *Martin* v. *Equitable Acci. Asso.* 61 Hun, 467, 16 N. Y. Supp. 279; *Western Commercial Travelers' Asso.* v. *Smith*, 40 L. R. A. 653, 29 C. C. A. 223, 56 U. S. App. 393, 85 Fed. 401; *Nax* v. *Travelers' Ins. Co.* 130 Fed. 985.

[62] *Lawrence* v. *Accidental Ins. Co.* L. R. 7 Q. B. Div. 216, 50 L. J. Q. B. N. S. 522, 45 L. T. N. S. 29, 29 Week. Rep. 802, 45 J. P. 781; *Winspear* v. *Accident Ins. Co.* L. R. 6 Q. B. Div. 42, 43 L. T. N. S. 459, 29 Week. Rep. 116.

of death, or whether or not it was occasioned wholly or in part by disease, is a question of fact for the jury.[63]

535. Particular diseases.—A representation or warranty in an application for insurance, of freedom from particular named diseases, is not falsified by a mere temporary ailment of a kind named.[64] Such representations and warranties refer to the diseases named, when they are of a permanent constitutional nature, and indicate a vice in the constitution, and have some bearing upon the general health and continuance of life of the applicant.[65] And a representation that the applicant had not been subject to open sores or swellings refers to such sores or swellings as result from disease or disorder, or from some fundamental derangement, and not such as result from wounds or accidents.[66] And addiction to the use of chloral, within the meaning of such a representation, refers to the habitual, customary, or constant use of it.[67] Nor will having a single epileptic fit caused by a sunstroke constitute being subject to fits. They must be of such a nature as to recur with some frequency.[68] And a warranty or representation as to the nonexistence of insanity in certain named relatives, or other constitutional disease hereditary in its character, is not falsified by the existence of such insanity in such relatives, unless it was hereditary;[69] though a question as to whether certain relatives of the appli-

[63]*Martin* v. *Equitable Acci. Asso.* 61 Hun, 467, 16 N. Y. Supp. 279; *Preferred Mut. Acci. Asso.* v. *Beidelman,* Monaghan (Pa.) 481.

[64]*Rand* v. *Provident Sav. Life Assur. Soc.* 97 Tenn. 291, 37 S. W. 7. And see *Fowkes* v. *Manchester & Life Ins. Co.* 3 Fost. & F. 440; *Life Asso.* v. *Foster,* 11 Sc. Sess. Cas. 351, 4 Bigelow, Life & Acci. Ins. Rep. 520.

An answer by an applicant for insurance, of "never sick," to a question as to whether he had had certain diseases, means not that he had never been sick of any disorder, but only that he never had any of the enumerated diseases so as to constitute sickness. *Knickerbocker L. Ins. Co.* v. *Trefz,* 104 U. S. 197, 26 L. ed. 708.

[65]*Woodward* v. *Iowa Ins. Co.* 104 Tenn. 49, 56 S. W. 1020; *World Mut. L. Ins. Co.* v. *Schultz,* 73 Ill. 586.

[66]*Home Mut. Life Asso.* v. *Gillespie,* 110 Pa. 84, 1 Atl 340.

[67]*Rand* v. *Provident Sav. Life Assur.* Soc. 97 Tenn. 291, 37 S. W. 7.

[68]*Chattock* v. *Shawe,* 1 Moody & R. 498, 3 Bigelow, Life & Acci. Ins. Rep. 10.

And while vertigo is swimming in the head, the term as used in an interrogatory in an application for insurance refers to an ailment of such a character as renders the insurance more hazardous by affecting the general health of the insured, and does not include swimming or dizziness in the head caused by indigestion. *Mutual Ben. L. Ins. Co.* v. *Daviess,* 87 Ky. 541, 9 S. W. 812.

[69]*Sinclair* v. *Phoenix Mut. L. Ins. Co.* 9 Ins. L. J. 523; *Peasley* v. *Safety Deposit L. Ins. Co.* 15 Hun, 227.

And a question in an application for insurance as to whether the applicant had any difficulty with his head or brain, following one as to the functions of the brain and nervous system, will be deemed to refer to mental unsoundness, or to some functional derangement of the head or brain, and not to include a temporary or occasional physical disturbance which is the result of accidental causes, such as periodical attacks of headache not originating in any unsoundness or derangement or permanent disease. *Higbie* v. *Guardian Mut. L. Ins. Co.* 53 N. Y. 603.

cant had insanity signifies, when unexplained and unlimited, any derangement of the mind which deprives it of the power to reason or will intelligently, and is not confined to such forms of insanity as affect the physical health and tend to shorten life, but includes a case of chronic dementia in which the patient is quiet and harmless and in good health.[70]

So, a warranty that an applicant for insurance had no spitting or raising of blood is not a warranty that he never spit or raised blood, but only that he did not have it in such a form as to be a disease, disorder, or constitutional vice;[71] a single instance of blood raising having significance only as an item of evidence tending to show the presence of disease, the weight of which depends largely upon the circumstances of the occurrence;[72] though a question in an application for insurance, as to whether the applicant had a disease or disorder of spitting or raising of blood, includes instances of spitting blood though they may not have amounted to a disease, since it would be at least a disorder.[73] And a representation that the applicant never had paralysis is falsified by proof of two previous attacks, and that he had expressed apprehension that a third would be fatal, and of his final death in a third attack.[74] And a defense that the insured was afflicted with Bright's disease raises a question for the jury, under a warranty against the existence of disease of the kidneys.[75] And frequent attacks of sick headache at irregular intervals, accompanied by vomiting and pain in the chest lasting many hours, is a violation of a warranty against severe protracted headaches, though they did not involve a vice in the constitution, or have any bearing upon general health or continuance of life.[76]

[70] *Johnson* v. *Maine & N. B. Ins. Co.* 83 Me. 182, 22 Atl. 107. And see *Newton* v. *Mutual Ben. L. Ins. Co.* 76 N. Y. 426, 32 Am. Rep. 335.

[71] *Dreier* v. *Continental L. Ins. Co.* 24 Fed. 670; *Peterson* v. *Des Moines Life Asso.* 115 Iowa, 668, 87 S. W. 397.

In *Geach* v. *Ingall*, 14 Mees. & W. 95, 15 L. J. Exch. 37, 9 Jur. 691, however, it was held that, while the expression "spitting of blood" used as an interrogatory would probably mean the disorder of blood spitting, whether proceeding from the lungs, the stomach, or any other part of the body, still, one single act of spitting of blood would be sufficient to put the insurers on inquiry as to the cause of it, and ought therefore to be stated.

[72] *Dreier* v. *Continental L. Ins. Co.* 24 Fed. 670; *Campbell* v. *New England Mut. L. Ins. Co.* 98 Mass. 381.

Evidence as to the sense in which the term "spitting of blood" was used in a warranty of freedom therefrom, in an application for insurance, is admissible in an action upon the policy. *Singleton* v. *St. Louis Mut. Ins. Co.* 66 Mo. 63, 27 Am. Rep. 321.

[73] *Smith* v. *Northwestern Mut. L. Ins. Co.* 196 Pa. 314, 46 Atl. 426. And see *Arnold* v. *Metropolitan L. Ins. Co.* 20 Pa. Super. Ct. 61.

[74] *Barteau* v. *Phoenix Mut. L. Ins. Co.* 3 Thomp. & C. 576.

[75] *Continental L. Ins. Co.* v. *Yung*, 113 Ind. 159, 3 Am. St. Rep. 630, 15 N. E. 220.

[76] *Mutual L. Ins. Co.* v. *Simpson*, 88 Tex. 333, 28 L. R. A. 765, 53 Am. St. Rep. 757, 31 S. W. 501.

536. Serious or severe illness.—The use as a prefix of the words "serious or severe" in a representation or warranty against the existence of illness or disease in an application for insurance seems to have little if any effect upon its character; the term "serious or severe illness" in such case meaning such illness as is likely to impair permanently the constitution, and render the risk more hazardous.[77] Mere slight temporary disturbances, unless presenting characteristics of a dangerous disease, will not affect a policy issued upon a representation that the assured had not had any severe or serious sickness or disease.[78] The question in such case is whether the illness produced any ultimate effect upon the health, longevity, or strength of the applicant.[79] The word "serious," however, as used with reference to sickness or disease in life insurance matters does not necessarily signify a dangerous condition, but rather a grave or a weighty trouble.[80] And whether an applicant for insurance had any serious disease within the meaning of such a provision is a question of fact for the jury upon all the evidence.[81] And even sunstroke and pneumonia are not serious diseases within the meaning of such a provision, as a matter of law.[82]

537. Serious personal injuries.—Representations and warranties in applications for insurance as to freedom from serious bodily injury seem to be governed by the same rules as representations and warranties with reference to health or disease; and one that the applicant had never received any hurt, wound, or serious bodily injury, refers to an injury to the body causing an impairment of the health or strength, or rendering the person more liable to contract disease, or less able to resist its effects.[83] And a personal injury which will

[77] *Rand* v. *Provident Sav. Life Assur. Soc.* 97 Tenn. 291, 37 S. W. 7; *Illinois Masons' Benev. Soc.* v. *Winthrop*, 85 Ill. 537; *Drakeford* v. *Supreme Conclave, K. of D.* 61 S. C. 338, 39 S. E. 523.

[78] *Conver* v. *Phoenix Mut. L. Ins. Co.* 3 Dill. 224, Fed. Cas. No. 3143; *Goucher* v. *Northwestern Traveling Men's Asso.* 20 Fed. 596; *Caruthers* v. *Kansas Mut. L. Ins. Co.* 108 Fed. 487.

[79] *Goucher* v. *Northwestern Traveling Men's Asso.* 20 Fed. 596.

[80] *Metropolitan L. Ins. Co.* v. *Howle*, 62 Ohio St. 204, 56 N. E. 908.

[81] *Cushman* v. *United States L. Ins. Co.* 70 N. Y. 72; *Boos* v. *World Mut. L. Ins. Co.* 64 N. Y. 236, Affirming 6 Thomp. & C. 364; *Knickerbocker L. Ins. Co.* v. *Trefz*, 104 U. S. 197, 26 L. ed. 708.

And evidence in an action on an insurance policy issued on a representation that the applicant had never had apoplexy, paralysis, fits, or any severe sickness or disease, that only seven days previous to the application he had been prostrated, and remained for some time in an unconscious state, the attack being so severe that two physicians were called by his friends; and that similar attacks less severe had been frequent,—raises a question of fact for the jury, whether such attacks constituted a disease within the meaning of such representations. *Conver* v. *Phoenix Mut. L. Ins. Co.* 3 Dill. 224, Fed. Cas. No. 3,143.

[82] *Boos* v. *World Mut. L. Ins. Co.* 64 N. Y. 236, Affirming 6 Thomp. & Co. 364.

[83] *Bancroft* v. *Home Ben. Asso.* 120 N. Y. 14, 8 L. R. A. 68, 23 N. E. 997; *Fitch* v. *American Popular L. Ins. Co.* 59 N. Y. 557.

invalidate an insurance policy, under a representation or warranty that the insured had not met with any accidental or serious personal injury, must have been serious, as well as accidental, and such as would or might possibly influence the subsequent health and length of life of the insured.[84] The question whether an applicant for insurance had suffered a serious personal injury, under such a provision, is not to be determined exclusively by the impression created as to the matter at the time of the injury; its influence on the health, strength, and probable length of life, is to be taken into account; and the jury must decide from these and the nature of the injury, whether there has been a breach.[85]

538. Right to medical examination of body of insured.—The fact that insurance does not cover certain named diseases or injuries gives the insurance company no right to disinter and dissect the body of the insured for the purpose of finding some trace of disease or injury not covered by the insurance which might have caused death.[86] And a provision in an insurance policy that any medical adviser of an insurance company shall be permitted to examine the person or body of the insured in respect to any alleged injury or cause of death, and in case of any post-mortem examination the company shall have opportunity to attend and participate, gives the company's medical adviser the right to scrutinize and examine the body of the insured while it remains unburied, but gives no right to disinter it and dissect it.[87] And the effect of a notice of death under such a provision is to impose upon the company the obligation of immediately making investigation to enable it to decide whether to insist upon its right to an examina-

[84] *Wilkinson* v. *Connecticut Mut. L. Ins. Co.* 30 Iowa, 119, 6 Am. Rep. 657.

[85] *Union Mut. L. Ins. Co.* v. *Wilkinson*, 13 Wall. 222, 20 L. ed. 617.

[86] *Wehle* v. *United States Mut. Acci. Asso.* 11 Misc. 36, 31 N. Y. Supp. 865, Affirmed in 153 N. Y. 116, 60 Am. St. Rep. 598, 47 N. E. 35.

And the exhumation of the body of an insured person should not be directed in an action upon an insurance policy, which is defended upon the ground of an alleged false answer to a question in the application as to whether the assured had ever received a serious personal injury, for the purpose of examination for the discovery of traces of such injury, upon the testimony of the physician of the insured that the deceased had told him that he had met with an accident; and that he had examined his head and found marks, but declined to say that they were evidence of a fracture, and thought they might have been produced in other ways. *Grangers' Ins. Co.* v. *Brown*, 57 Miss. 308, 34 Am. Rep. 446.

But an accident insurance policy containing a provision that in case of an injury or of death the insurance company shall be authorized through its medical adviser to make an examination, either of the person with respect to the alleged injury, or of the body to ascertain the cause of death, as the case may be, is a proper contract making a reasonable provision necessary in accident cases to afford protection against fraud. *Wehle* v. *United States Mut. Acci. Asso.* 153 N. Y. 116, 60 Am. St. Rep. 598, 47 N. E. 35.

[87] *Wehle* v. *United States Mut. Acci. Asso.* 11 Misc. 36, 31 N. Y. Supp. 865, Affirmed in 153 N. Y. 116, 60 Am. St. Rep. 598, 47 N. E. 35.

tion of the body; and a delay upon its part until after burial, without excuse, deprives it of any defense against the policy on the ground that the examination was not made.[88]

[88] *Wehle* v. *United States Mut. Acci. Asso.* 153 N. Y. 116, 60 Am. St. Rep. 598, 47 N. E. 35.

CHAPTER XXIV.

IDENTIFICATION.

539. A matter of evidence; competency.—In testifying to identity, the evidence can frequently be nothing more than belief or opinion.[1] The question of identity is not necessarily one of expert testimony, but depends upon the observation and knowledge of the particular witness; and no matter what his skill or experience may be, his evidence is competent, the weight being a question for the jury.[2] It is competent, however, for a medical witness, on the question of the identity of a deceased person, to state the character and nature of the changes in the human body produced by death, and to explain to what extent such changes have operated upon the body in question, and to state their usual and necessary effect according to the laws of nature.[3] And the opinion of a physician, that a body was that of a mulatto, has been admitted;[4] and so has the opinion of a physician as to the effect upon the skin, of the body remaining a long time in water.[5] So, the apparent age of the fracture of a bone is admissible on the question of identification, as evidence of the condition of the body, and as tending to prove the possibility that the injury was inflicted upon a living subject and was the cause of death.[6] And experiments as to blood stains by experts, and their comparison and explanation of differences between human blood and the blood of animals are admissible.[7] And an expert may testify that a skeleton, portions of which

[1] *Com.* v. *Dorsey*, 103 Mass. 412.

[2] *State* v. *Harr*, 38 W. Va. 58, 17 S. E. 794.

[3] *State* v. *Vincent*, 24 Iowa, 570, 95 Am. Dec. 753.

And where, in a prosecution for murder of a person, it is claimed that he and several others were killed, and that the building in which they were was burned to prevent identification, evidence of a physician as to the condition of the several bodies found in the fire is competent as tending to identify the body of the person whose murder is charged, and as tending to prove that he came to his death by foul means. *State* v. *Tettaton*, 159 Mo. 354, 60 S. W. 743.

[4] *Lancaster* v. *State*, 91 Tenn. 274, 18 S. W. 777.

[5] *Ibid.*

[6] *Linsday* v. *People*, 63 N. Y. 143.

[7] *People* v. *Johnson*, 140 N. Y. 350, 35 N. E. 604; *Linsday* v. *People*, 63 N. Y. 143.

And such experiments are not rendered inadmissible by the circumstance that the facts claimed to support the theory of the prosecution were not

were found, was that of a human being, or that it was one of a female.[8] But the question of the possibility of identification of a part of the human body is not one of anatomy or chemistry, and not a subject of expert testimony.[9] And whether a fracture was fresh and recent, or discolored and old, is provable by any witness of common experience and understanding;[10] and the opinion of a physician based on a comparison of different hair, that it came from the head of the same person, founded upon similarity of length, magnitude, and color, and not based on any scientific tests or peculiarities, is not admissible as expert testimony;[11] though testimony of ordinary witnesses to that effect is not subject to objection that the witnesses were not experts.[12]

proved beyond all controversy, and with entire conclusiveness, where there was some evidence; the question being one for the jury. *Linsday* v. *People*, 63 N. Y. 143.

And proof of blood stains upon the prisoner's clothing, in a prosecution for murder, is not rendered inadmissible as lacking the necessary certainty by the fact that the stains might have come from a market where the blood of animals was dripping, to which the accused had been in the habit of going, and that an expert called by the prosecution refused to swear positively that the stains were human blood; since it may be impossible to distinguish absolutely between human blood and that of some animals, under all circumstances. *People* v. *Johnson*, 140 N. Y. 350, 35 N. E. 604.

[8] *Kugadt* v. *State*, 38 Tex. Crim. Rep. 681, 44 S. W. 989.

[9] *State* v. *Vincent*, 24 Iowa, 570, 95 Am. Dec. 753.

[10] *Linsday* v. *People*, 63 N. Y. 143.

[11] *Knoll* v. *State*, 55 Wis. 249, 42 Am. Rep. 704, 12 N. W. 369.

But the inference of a physician, that a skull to which was attached a hair 10 inches long was the skull of a female, is admissible in evidence on the question of identity. *Gray* v. *Com.* 101 Pa. 380, 47 Am. Rep. 733.

[12] *Com.* v. *Dorsey*, 103 Mass. 412.

And the evidence of a dentist, of the extraction of certain teeth of a person alleged to have been killed, and of peculiar marks upon those remaining, and of the absence of similar teeth from the jaw of a person found dead, and of the presence of the same marks upon the other teeth, is admissible in a prosecution for the killing, as tending to identify the body. *Linsday* v. *People*, 63 N. Y. 143.

CHAPTER XXV.

SURVIVORSHIP.

540. Competency of medical evidence as to.—Though survivorship has always been treated as a subject pertaining to medical jurisprudence, the only questions of medical jurisprudence which seem to enter into it are those with relation to proof of survivorship of one victim of a common disaster over another, by medical evidence and scientific medical opinion. With reference to these questions the civil law doctrine, and that of the states and countries adopting it, is that when two persons perish in the same calamity, and it is not shown who died first, and there are no particular circumstances from which it can be inferred, survivorship is presumed from the probabilities resulting from strength, age, and sex, according to certain rules.[1] And under that law, and previous to the adoption of a different doctrine under the common law, a scientific opinion as to the probable survivorship seems to have been universally regarded as admissible.[2]

The doctrine of the common law, however, is that where several individuals perish by a common calamity, and there are no circumstances other than those of age, sex, etc., from which it may be rationally inferred who was the longest liver, no presumption arises upon which a conclusion can be predicated;[3] and in such a case there is no

[1] See *Hollister* v. *Cordero*, 76 Cal. 649, 18 Pac. 855; *Sanders* v. *Simcich*, 65 Cal. 50, 2 Pac. 741; *Langles' Succession*, 105 La. 39, 29 So. 739; *Robinson* v. *Gallier*, 2 Woods, 178 Fed. Cas. No. 11951; *Newell* v. *Nichols*, 12 Hun, 604, Affirmed in 75 N. Y. 78, 31 Am. Rep. 424; *Re Hall*, 12 Chicago Legal News, 68, 9 Cent. L. J. 381.

Louisiana and California seem to be the only American states in which the rule of the civil law has been adopted.

And even under the civil law as adopted in America, where two persons perish in the same event, there are no presumptions of law as to survivorship, unless prescribed by positive statutory enactment. And where two persons perish at the same instant, or where it is impossible to declare which perished first, the person seeking to disturb the title or possession of others, on the ground of such survivorship, must fail. *Robinson* v. *Gallier*, 2 Woods, 178, Fed. Cas. No. 11951.

[2] See *Underwood* v. *Wing*, 4 De G. M. & G. 633, 23 L. J. Ch. N. S. 982.

[3] *Smith* v. *Croom*, 7 Fla. 81; *Kansas P. R. Co.* v. *Miller*, 2 Colo. 442; *Re Hall*, 12 Chicago Legal News, 68, 9 Cent. L. J. 381; *Balder* v. *Middcke*, 92 Ill. App. 227; *Russell* v. *Hallett*, 23 Kan. 276; *Johnson* v. *Merithew*, 80 Me. 111, 6 Am. St. Rep. 162, 13 Atl. 132; *Cowman* v.

presumption either that one of the parties survived another, or that the two died at the same time;[4] and the speculations and opinions of scientific witnesses based on such considerations are not evidence upon which a finding of survivorship may be based.[5] Under this rule the question is always one of fact, depending wholly upon the evidence;[6]

Rogers, 73 Md. 403, 10 L. R. A. 550, 21 Atl. 64; *Coye* v. *Leach*, 8 Met. 371, 41 Am. Dec. 518; *Newell* v. *Nichols*, 75 N. Y. 78, 31 Am. Rep. 424, Affirming 12 Hun, 604; *Moehring* v. *Mitchell*, 1 Barb. Ch. 264; *Stinde* v. *Goodrich*, 3 Redf. 87; *Southwell* v. *Gray*, 35 Misc. 740, 72 N. Y. Supp. 342; *Re Wilbor*, 20 R. I. 126, 51 L. R. A. 863, 78 Am. St. Rep. 842, 37 Atl. 634; *Pell* v. *Ball*, Cheves, Eq. 99; *Paden* v. *Briscoe*, 81 Tex. 563, 17 S. W. 42; *Cook* v. *Caswell*, 81 Tex. 678, 17 S. W. 385; *Ehle's Will*, 73 Wis. 445, 41 N. W. 627; *Hartshorne* v. *Wilkins*, 6 N. S. 276; *Underwood* v. *Wing*, 19 Beav. 459, 31 Eng. L. & Eq. 293, 24 L. J. Ch. N. S. 293, 1 Jur. N. S. 169, 3 Week. Rep. 228, Affirming 4 De G. M. & G. 633, 23 L. J. Ch. N. S. 982; *Wing* v. *Angrave*, 8 H. L. Cas. 183, 30 L. J. Ch. N. S. 65; *Mason* v. *Mason*, 1 Meriv. 308; *Murray's Goods*, 1 Curt. Eccl. Rep. 596; *Doe ex dem. Knight* v. *Nepean*, 5 Barn. & Ad. 86, 2 Nev. & M. 219, 2 L. J. K. B. N. S. 150; *Satterthwaite* v. *Powell*, 1 Curt. Eccl. Rep. 705; *Alston's Goods* [1892] P. 142, 61 L. J. Prob. N. S. 92, 66 L. T. N. S. 591; *Wainwright's Goods*, 1 Swabey & T. 257, 28 L. J. Prob. N. S. 2; *Ewart's Goods*, 1 Swabey & T. 258; *Barnett* v. *Tugwell*, 31 Beav. 232; *Scrutton* v. *Pattillo*, L. R. 19 Eq. 369, 44 L. J. Ch. N. S. 249, 32 L. T. N. S. 140, 23 Week. Rep. 379; *Carmichael's Goods*, 32 L. J. Prob. N. S. 70, 11 Week. Rep. 462, 4 Swabey & T. 224; *Wheeler's Goods*, 31 L. J. Prob. N. S. 40. And see *Hitchcock* v. *Beardsley*, 1 West Ch. 445; *King* v. *Hay*, 1 W. Bl. 640; *Wright* v. *Sarmuda*, 2 Phillim. Eccl. Rep. 261, note; *Taylor* v. *Diplock*, 2 Phillim. Eccl. Rep. 261; *Johnson's Goods*, 78 L. T. N. S. 85; *Selwyn's Goods*, 3 Hagg. Eccl. Rep. 748; *Elliott* v. *Smith*, L. R. 22 Ch. Div. 236, 52 L. J. Ch. N. S. 222, 48 L. T. N. S. 27, 31 Week. Rep. 336; *Wollaston* v. *Berkeley*, L. R. 2 Ch. Div. 213, 45 L. J. Ch. N. S. 772, 34 L. T. N. S. 171, 24 Week. Rep. 360; *Grinstead's Goods*, 21 L. T. N. S. 731.

In *Colvin* v. *Her Majesty's Procurator General*, 1 Hagg. Eccl. Rep. 92, however, it was said that the prima facie presumption of law is that a husband survived his wife, where they suffered death in a common calamity.

But in *Stinde* v. *Goodrich*, 3 Redf. 87, it was held in accordance with the general rule, that where several persons, some male and others female, perished in the loss of a vessel at sea, and there is no positive evidence as to which perished first, there is no presumption that the males survived longest.

[4]*Newell* v. *Nichols*, 75 N. Y. 78, 31 Am. Rep. 424, Affirming 12 Hun, 604; *Russell* v. *Hallett*, 23 Kan. 276; *Johnson* v. *Merithew*, 80 Me. 111, 6 Am. St. Rep. 162, 13 Atl. 132; *Supreme Council, R. A.* v. *Kacer*, 96 Mo. App. 93, 69 S. W. 671; *United States Casualty Co.* v. *Kacer*, 169 Mo. 301, 58 L. R. A. 436, 92 Am. St. Rep. 641, 69 S. W. 370; *Wing* v. *Angrave*, 8 H. L. Cas. 183, 30 L. J. Ch. N. S. 65.

In *Bradshaw* v. *Toulmin*, 2 Dick. 633, it was claimed by counsel that if two persons, being joint tenants, had perished at one blow, the estate would remain a joint tenancy in their respective heirs.

[5]*Underwood* v. *Wing*, 1 Jur. N. S. 169, 24 L. J. Ch. N. S. 293, 3 Week. Rep. 228, 31 Eng. L. & Eq. 293, 19 Beav. 459, Affirming 4 De G. M. & G. 633, 23 L. J. Ch. N. S. 982; *Wing* v. *Angrave*, 8 H. L. Cas. 183, 30 L. J. Ch. N. S. 65. And see *Smith* v. *Croom*, 7 Fla. 81; *Pell* v. *Ball*, Cheves, Eq. 99.

In *Sillick* v. *Booth*, 1 Younge & C. Ch. Cas. 117, 6 Jur. 142, however, though not necessary to the decision, it was said that by the law of England evidence of health, strength, age, or other circumstances, may be given in cases involving survivorship, as tending to the judicial presumption that one party survived the other.

[6]*Underwood* v. *Wing*, 1 Jur. N. S. 169, 31 Eng. L. & Eq. 293, 3 Week. Rep. 228, 24 L. J. Ch. N. S. 293, 19 Beav. 459, Affirming 4 De G. M. & G. 633, 23 L. J. Ch. N. S. 982; *Wing* v. *Angrave*, 8 H. L. Cas. 183, 30 L. J. Ch. N. S. 65; *Newell* v. *Nichols*, 75 N. Y. 78, 31 Am. Rep. 424, Affirming 12 Hun, 604; *Re Hall*, 12

the burden of proof of survivorship always resting with him who asserts that one victim of a common calamity survived another, and his case must fall if he fails to show it.[7] But where a calamity, though common to all, consists of a series of successive events separated from each other in point of time and character, and each likely to produce death upon the several victims according to the degree of exposure to it, the difference of age, sex, and physical strength, becomes a matter of evidence, and may be considered.[8] And if there are outside and independent indications of survivorship, the court may resort to all the circumstances attending the fatal catastrophe, and look to the respective situations of the parties with respect to locality and consequent exposure to danger, and also to their physical strength as imparting more or less ability to combat the impending peril.[9] And it would seem that in such case medical evidence and the opinions of medical experts would be admissible as bearing upon such ability to combat impending peril, under general rules with relation to such evidence.[10] And in order to arrive at a conclusion upon the ques-

Chicago Legal News, 68, 9 Cent. L. J. 381; *Russell* v. *Hallett*, 23 Kan. 276; *Paden* v. *Briscoe*, 81 Tex. 563, 17 S. W. 42.

While general considerations, such as age, health, etc., may be resorted to to aid conjecture on the question of survivorship in a common catastrophe, where there is any evidence whatever, though it be but a shadow, it must govern in the decision of the fact. *Pell* v. *Ball*, Cheves, Eq. 99.

[7] *Underwood* v. *Wing*, 1 Jur. N. S. 169, 24 L. J. Ch. N. S. 293, 19 Beav. 459, 3 Week. Rep. 228, 31 Eng. L. & Eq. 293, Affirming 4 De G. M. & G. 633, 23 L. J. Ch. N. S. 982; *Wing* v. *Angrave*, 8 H. L. Cas. 183, 30 L. J. Ch. N. S. 65; *Hitchcock* v. *Beardsley*, West, 445; *Taylor* v. *Diplock*, 2 Phillim. Eccl. Rep. 261; *Doe ex dem. Knight* v. *Nepean*, 5 Barn. & Ad. 86, 2 Nev. & M. 219, 2 L. J. K. B. N. S. 150; *Satterthwaite* v. *Powell*, 1 Curt. Eccl. Rep. 705; *Russell* v. *Hallett*, 23 Kan. 276; *Johnson* v. *Merithew*, 80 Me. 111, 6 Am. St. Rep. 162, 13 Atl. 132; *Fuller* v. *Linzee*, 135 Mass. 468; *Newell* v. *Nichols*, 75 N. Y. 78, 31 Am. Rep. 424, Affirming 12 Hun, 604; *Stinde* v. *Ridgway*, 55 How. Pr. 301; *Ehle's Will*, 73 Wis. 445, 41 N. W. 627.

Where the benefits of survivorship are not mutual, the burden of proof as to survivorship rests with the party to whom the survivorship would be beneficial. *Pell* v. *Ball*, Cheves Eq. 99.

[8] *Smith* v. *Croom*, 7 Fla. 81; *Pell* v. *Ball*, Cheves Eq. 99; *Ehle's Will*, 73 Wis. 445, 41 N. W. 627.

[9] *Smith* v. *Croom*, 7 Fla. 81; *Re Hall*, 12 Chicago Legal News, 68, 9 Cent. L. J. 381; *Broome* v. *Duncan* (Miss.) 29 So. 394; *Stinde* v. *Ridgway*, 55 How. Pr. 301; *Broughton* v. *Randall*, 1 Cro. Eliz. 502, Noy, 64. And see *Coye* v. *Leach*, 8 Met. 371, 41 Am. Dec. 518.

Even the civil law presumption as to survivorship where two persons perish in the same calamity, as existing in Louisiana, only applies in the absence of circumstances of fact, and where the persons are respectively entitled to inherit from one another. *Robinson* v. *Gallier*, 2 Woods. 178, Fed. Cas. No. 11,951.

And evidence that a husband and wife, he being fifty-two years of age and she twenty-eight, were drowned by the sinking of a vessel in which they were passengers, and that a minute or two before the sinking they were seen in their stateroom, she lying down, and he standing up and holding to the door, he being perfectly calm and collected, and she appearing sick, does not show or tend to show that she survived him, notwithstanding the difference in their ages. *Gallier's Case*, 2 Southern Law Rev. N. S. 594.

[10] See *Pell* v. *Ball*, Cheves, Eq. 99.

tion there need not be such an amount of certainty as will exclude the possibility that the fact could be otherwise; all that is necessary is that moral conviction should be induced by appropriate evidence;[11] the fact of survivorship not requiring any higher degree of proof than other facts in civil cases.[12]

"The common law encourages a resort to every fountain from which truth can be drawn; it listens to witnesses, it looks into the internal evidence of things, it contemplates the whole of the circumstances, and then draws its conclusions according to the preponderating probability." *Ibid.*

[11] *Smith* v. *Croom*, 7 Fla. 81. And see *Broome* v. *Duncan* (Miss.) 29 So. 394; *Stinde* v. *Ridgway*, 55 How. Pr. 301.

[12] *Robinson* v. *Gallier*, 2 Woods, 178, Fed. Cas. No. 11,951.

Proof that a husband and wife perished on board a steamboat by a catastrophe caused by the explosion of one of the boilers, which shattered the vessel, and caused it to fall to pieces and sink about half an hour later; and that the wife was seen, and heard to call loudly for her husband immediately after the disaster; and that he was not heard to answer, or seen or heard at any time after the explosion, — is sufficient to warrant a finding that she survived the husband. *Pell* v. *Ball*, Cheves Eq. 99.

But evidence that a testatrix, and two grandchildren, and their father, perished on a steamship; and that they were in the pavilion upon the deck after the disaster; and that the waves broke over the ship; and the testatrix was washed out of the pavilion, it not appearing whether she was carried out into the sea or to some other part of the deck, the disaster occurring at night; and that the children and their father were seen alive in the pavilion some ten or fifteen minutes afterward when the pavilion and its inmates were swept away; and that the dead body of the testatrix was afterwards recovered, but the remains of the children were never found,—is not sufficient to establish survivorship on the part of the children. *Re Ridgway*, 4 Redf. 226.

CHAPTER XXVI.

RAPE.

541. Scope of chapter.—Though rape covers a wide field of the criminal law, and though its commission requires and furnishes opportunity for the frequent exercise of a high degree of medical skill, the questions arising are purely legal or purely medical. The only questions with relation to which the two sciences are so blended and inseparable as to make them properly a matter of medical jurisprudence would appear to be those with relation to medical examinations in rape cases, and evidence as to results and information obtained; and those with relation to the opinions of medical experts as to conditions, and as to causes and results of conditions, arising, or alleged to arise, from rape.

542. Medical examinations and evidence as to.—The physical condition of the complainant in a prosecution for rape may always be shown either in corroboration or contradiction of her testimony with reference to the acts in question; and the remoteness of a physical examination for the purpose of discovering such condition, from the time of the alleged rape, goes merely to its probative force as evidence, and not to its admissibility.[1] And it has been held that the result of a medical or surgical examination of the person of the prosecutrix is not inadmissible because made five or six days after the alleged offense;[2] or because made twelve days thereafter;[3] or because made

[1] *Gifford* v. *People*, 148 Ill. 173, 35 N. E. 754; *State* v. *King*, 117 Iowa, 484, 91 N. W. 768; *Bannen* v. *State*, 115 Wis. 317, 91 N. W. 107, 965.

And the state may properly show, in a prosecution for statutory rape, that the prosecuting witness was delivered of a child at about the time when, if her testimony of the affair was true, it might have been expected. *State* v. *Walke* (Kan.) 76 Pac. 408.

And the testimony of a physician in a prosecution for rape upon a female under the age of consent, that the prosecutrix subsequently, but within the period of gestation, had suffered a miscarriage, is competent as tending to prove the commission of the crime charged, and as corroborative of the evidence of the prosecution to the effect that the defendant was the guilty party. *State* v. *Fetterly* (Wash.) 74 Pac. 810.

[2] *People* v. *Benc*, 130 Cal. 159, 62 Pac. 404.

[3] *State* v. *Teipner*, 36 Minn. 535, 32 N. W. 678.

some four or five weeks after the alleged offense;[4] or because made two months or more thereafter;[5] or even where made more than a year after the alleged offense;[6] the value of testimony with relation thereto, and the effect of delay upon its force, being a question for the jury.[7] Proof of a medical examination by a physician in a prosecution for rape, and of facts learned thereon, however, is inadmissible as too remote, where the case was not one of forcible ravishment, in which recent injury would be persuasive evidence of force, but one of rape upon a person under the age of consent, where the examination was made four months after she had passed that age.[8] And discoveries made upon a medical examination nearly two years after the alleged crime are not competent to serve as evidence in corroboration of the testimony of the complainant, under a statute providing that no conviction can be had for rape upon the testimony of the female, unsupported by other evidence.[9] Nor can evidence of an examination made four years later be admitted as tending to connect the defendant with the crime, where the complainant had given evidence of facts, other than the acts of the defendant, from which the conditions discovered might have resulted.[10] A medical examination within such time as to lead to the discovery of marks of violence,

[4] *State* v. *Watson*, 81 Iowa, 380, 46 N. W. 868; *Pless* v. *State*, 23 Tex. App. 73, 3 N. W. 576; *Lyles* v. *United States*, 20 App. D. C. 559.

And where a medical examination was made, of a child alleged to have been raped, about six weeks after the commission of the offense, it will be taken for granted, in the absence of anything to the contrary, that the condition of the child was the same when examined as at the time of the offense. *Com.* v. *Lynes*, 142 Mass. 577, 56 Am. Rep. 709, 8 N. E. 408.

[5] *Gonzales* v. *State*, 32 Tex. Crim. Rep. 611, 25 S. W. 781. And see *Gifford* v. *People*, 148 Ill. 173, 35 N. E. 754.

[6] *Com.* v. *Allen*, 135 Pa. 483, 19 Atl. 957. And see *Myers* v. *State*, 84 Ala. 11, 4 So. 291.

Such evidence is not *per se* irrelevant, since it may tend to prove or confirm other testimony tending to prove a material ingredient in the offense. *Myers* v. *State*, 84 Ala. 11, 4 So. 291.

[7] *People* v. *Benc*, 130 Cal. 159, 62 Pac. 404; *State* v. *Watson*, 81 Iowa, 380, 46 N. W. 868; *Com.* v. *Allen*, 135 Pa. 483, 19 Atl. 957.

[8] *State* v. *Evans*, 138 Mo. 116, 60 Am. St. Rep. 549, 39 S. W. 462.

And an examination of an employee of a railroad company, by the jury in an action brought against the railroad company by a passenger for an assault consisting of the commission of a rape by the employee upon the passenger, is improper on the issue as to whether or not the employee was physically incapacitated from committing the act, where he was not shown to be in the same physical condition as when the assault is alleged to have been committed; and such an examination would also be improper as calculated to disgrace the administration of justice. *Garvik* v. *Burlington, C. R. & N. R. Co.* (Iowa) 100 N. W. 498.

[9] *People* v. *Butler*, 55 App. Div. 361, 66 N. Y. Supp. 851.

[10] *People* v. *Cornelius*, 36 App. Div. 565, 55 N. Y. Supp. 723.

And error in the reception of such evidence is not cured by the court, at the close of the evidence, limiting the effect to be given to it as tending to corroborate the plaintiff's testimony as to her condition, she herself having given evidence of other facts from which that condition might result. *Ibid.*

however, though proper, is not absolutely necessary to a conviction;[11] though a conviction is not warranted in the absence of such examination, where the party alleged to be injured is incapable of testifying, and the completed act can be established by circumstantial evidence only.[12]

543. Expert opinions.—Opinion evidence in rape cases, like that in other cases, must pertain to matters of scientific knowledge as distinguished from common information, or mere abstract speculation; and the effect of caresses and improper liberties, upon the mind of a female, is not a proper subject for expert testimony in such cases.[13] And medical evidence as to the proportion between true and false charges of rape is irrelevant.[14] Nor is the question whether or not it would be possible for a man to ravish a well-developed woman a subject for expert opinion.[15] And a medical witness cannot give an opinion as an expert, based on his knowledge of the human system and the human frame, whether a rape could have been committed in the mode and manner described; since no peculiar knowledge of the human system is necessary to answer it.[16] A physician fully ac-

[11] *Frazier* v. *State*, 56 Ark. 242, 19 S. W. 838.

[12] *Davis* v. *State*, 42 Tex. 226.

In *Donaldson* v. *Com.* 95 Pa. 21, it was said that the physician who, on the day after the occurrence, examined the person of the girl upon whom the offense was alleged to have been committed, should have been called as a witness whether his evidence tended to acquit or convict; it was demanded equally by the cause of humanity on the one hand, and of justice on the other; and that this is especially so where there is no direct evidence of the *factum* of the crime, as in a case in which the victim was insensible when the crime was committed.

[13] *People* v. *Royal*, 53 Cal. 62.

[14] *People* v. *Benc*, 130 Cal. 159, 62 Pac. 404.

And when such evidence is offered, a remark by the court that each case should stand upon its own merits, upon the question mooted in it, is not subject to complaint. *Ibid.*

And expert witnesses in a prosecution for rape cannot give specific examples coming from their own observation, or their own practice, as evidence in chief, though such evidence might be proper on examination by the court to test their skill and competency. *State* v. *Perry*, 41 W. Va. 641, 24 S. E. 634.

[15] *People* v. *Benc*, 130 Cal. 159, 62 Pac. 404; *Woodin* v. *People*, 1 Park. Crim. Rep. 464; *State* v. *Peterson*, 110 Iowa, 647, 82 N. W. 329. And see *State* v. *Taylor*, 103 Iowa, 22, 72 N. W. 417; *State* v. *Teipner*, 36 Minn. 535, 32 N. W. 678.

And a physician testifying as a witness in a prosecution for rape cannot give his opinion, based, not on the peculiar constitutional temperament of the woman in question, but on his knowledge of the female mind and system in general, whether a woman placed in the described situation would be likely to swoon or to be nerved with unusual strength; such a question not being susceptible of a rational answer, since women of different temperaments would have acted differently. *Cook* v. *State*, 24 N. J. L. 843.

[16] *Ibid.*

And refusal of the court, in an action for damages for rape, to allow a physician to testify as to the result of certain experiments he had made for the purpose of ascertaining whether the alleged criminal act could have been performed by two persons occupying the position which the complainant testified was occupied by her and the defendant, is not error, where it does not appear that the experiments were made under such conditions as to the size of the per-

quainted with the organism, construction, and anatomy of the human system, male and female, however, is competent to give his opinion as to the possibility of the act in question, where its possibility or impossibility depended upon, or was affected by, some physical injury, deformity, or incapacity.[17] And the testimony of the prosecuting witness as to the manner in which the act was performed may be contradicted by showing by medical experts that it was physically impossible to commit it in the manner complained of, or to produce the conditions found under the circumstances described.[18] And medical experts are competent upon the question of the age of a prosecutrix in a rape case, in which it is claimed that she had not arrived at the age of consent.[19]

Neither can an expert be permitted to usurp the province of the jury; and he cannot give an opinion that conditions discovered were the result of rape.[20] But a medical witness may describe a condition discovered on examination, and state the causes which would produce such a condition.[21] And a medical witness is competent to state what effects might result from rape.[22] And whether criminal charges preferred by a female patient against a physician are the result of hallucination while under the influence of drugs is not a matter of ordinary human experience or knowledge, but a question for determin-

sons as to make the result of any probative value. *McMurrin* v. *Rigby*, 80 Iowa, 322, 45 N. W. 877.

[17]*State* v. *Perry*, 41 W. Va. 641, 24 S. E. 634.

Where rape is alleged by a full-grown man upon a small child, a medical witness may properly testify as to the physical possibility of the completed performance of the act. *Hardtke* v. *State*, 67 Wis. 552, 30 N. W. 723.

[18]*People* v. *Baldwin*, 117 Cal. 244, 49 Pac. 186.

And the rejection of the testimony of a physician in a prosecution for rape, as to the physical impossibility of performing the act complained of in the manner claimed, and producing the conditions found on the person of the complainant, is not rendered harmless by the fact that the accused was convicted only of the lesser offense of an assault with an intent to commit a rape. *Ibid.*

But a medical witness examined as an expert in a prosecution for rape, though he had examined the prosecutrix and stated the result of his examination, cannot be permitted to express an opinion that no girl would have voluntarily submitted to the suffering necessary to have brought about the described result. *State* v. *Hull*, 45 W. Va. 767, 32 S. E. 240.

[19]*State* v. *Smith*, 61 N. C. (Phill. L.) 302.

[20]*Noonan* v. *State*, 55 Wis. 258, 12 N. W. 379.

But a physician who had attended a woman for a long time, and who, after an alleged assault with intent to ravish, discovered an unexpected condition which he could not account for after careful examination, may testify in an action for assault that if the assault had taken place, it would account for the change in her condition. *Fay* v. *Swan*, 44 Mich. 544, 7 N. W. 215.

[21]*Com.* v. *Lynes*, 142 Mass. 577, 56 Am. Rep. 709, 8 N. E. 408; *Proper* v. *State*, 85 Wis. 615, 55 N. W. 1035.

[22]*Noonan* v. *State*, 55 Wis. 258, 12 N. W. 379; *People* v. *Duncan*, 104 Mich. 460, 62 N. W. 556; *Young* v. *Johnson*, 123 N. Y. 226, 25 N. E. 363.

And where in a prosecution for rape the defense has given medical evidence as to the condition of the organs of the complainant, and as to the probable

ation by expert medical evidence.[23] And such evidence establishing the fact that accusations of rape might have been the result of hallucination is sufficient to raise a reasonable doubt of the physician's guilt.[24] The opinion of a physician is likewise competent as to whether or not the condition of a complainant might have been produced by disease, or by other causes than rape;[25] and the physician may properly testify as to how long the evidences of the crime can be detected from the clothing.[26]

length of time since the injury, upon the theory that the prosecution was the result of a conspiracy, and that the injury was a part of the plan and of a more recent date, the prosecution may properly offer medical testimony as to her condition, and as to the probable length of time between the injury and the examination, in rebuttal. *State* v. *Watson*, 81 Iowa, 380, 46 N. W. 868.

[23] *State* v. *Perry*, 41 W. Va. 641, 24 S. E. 634.

[24] *Ibid.*

[25] *People* v. *Baldwin*, 117 Cal. 244, 49 Pac. 186.

[26] *Ibid.*

CHAPTER XXVII.

MEDICAL EVIDENCE.

I. Expert testimony.

544. Limitations of the subject.—The attempt will not here be made to treat the general subject of expert testimony. That is an independent and well-defined subject connected with medical jurisprudence only by the fact that medical men constitute a large class of witnesses by whom expert testimony is given. Even those principles which are common both to medical expert testimony and to other expert testimony in general have been treated as belonging to the general subject; those here considered being only such as are specially applicable to medical testimony, or specially affected by their application to such testimony.

545. Qualifications of expert.—That a person is a practising physician is generally sufficient, in the absence of conflicting proof, to qualify him to give evidence as a medical expert.[1] Physicians and surgeons are presumed to be acquainted with all matters pertaining to their profession, and to be competent to testify concerning them;[2] and their opinions are admissible in evidence upon questions that are particularly and legitimately embraced in their profession and practice.[3] It is not necessary that the medical witness should be a specialist, or should have made a speciality of the particular disease involved in an inquiry, to render his testimony admissible as that of an expert;[4] and a person having the requisite qualifications is not

[1] *Livingston* v. *Com.* 14 Gratt. 592; *Washington* v. *Cole*, 6 Ala. 212; *DePhue* v. *State*, 44 Ala. 32; *Louisville, N. A. & C. R. Co.* v. *Wright*, 115 Ind. 378, 7 Am. St. Rep. 432, 16 N. E. 145; *Olmsted* v. *Gere*, 100 Pa. 127; *Coyne* v. *Manhattan R. Co.* 42 N. Y. S. R. 617, 16 N. Y. Supp. 686.

[2] *Robinson* v. *Marino*, 3 Wash. 434, 28 Am. St. Rep. 50, 28 Pac. 752; *Hathaway* v. *National L. Ins. Co.* 48 Vt. 335; *Louisville, N. A. & C. R. Co.* v. *Wright*, 115 Ind. 378, 7 Am. St. Rep. 432, 16 N. E. 145.

[3] *Hathaway* v. *National L. Ins. Co.* 48 Vt. 335. And see *Supreme Tent, K. of M.* v. *Stensland*, 206 Ill. 124, 68 N. E. 1098.

But the mere fact that a person was a regularly licensed and practising physician is not alone sufficient to qualify him to give an opinion as to the cause of symptoms of a patient, where, under the law, a certain class of physicians might have been licensed and permitted to practise without any regard whatever to their knowledge or learning. *State* v. *Simonis*, 39 Or. 111, 65 Pac. 595.

And the fact that a witness is a physician does not entitle him to give an opinion as to the possibilities of illuminating gas causing death, and its effects on health. *Emerson* v. *Lowell Gaslight Co.* 6 Allen, 146, 83 Am. Dec. 621.

[4] *Hathaway* v. *National L. Ins. Co.* 48 Vt. 335; *O'Neil* v. *Dry Dock, E. B. & B. R. Co.* 27 Jones & S. 123, 15 N. Y. Supp. 84; *Hardiman* v. *Brown*, 162 Mass. 585, 39 N. E. 192; *Siebert* v. *People*, 143 Ill. 571, 32 N. E. 431; *Young*

debarred from giving an opinion, in the absence of a statutory prohibition, by the fact that he is not a practitioner, licensed or otherwise;[5] and his reputation has nothing to do with his competency.[6] Nor will the opinion of a physician, offered in evidence, be rejected because his only information concerning the subject was derived from books, and not from observation or experience;[7] or because the information upon which it is based was obtained by means not in common use with the profession.[8] And in determining the qualifications of a physician as an expert, the extent of his reading in his profession may be considered, as well as his experience.[9] A physician's own opinion as to his qualifications as an expert is not controlling upon the court;[10] though effect will be given to it in connection with other evidence on the question.[11] A statute providing that

v. *Makepeace*, 103 Mass. 50; *Seckinger* v. *Philibert & J. Mfg. Co.* 129 Mo. 590, 31 S. W. 957; *Castner* v. *Sliker*, 33 N. J. L. 95; *Kelly* v. *United States*, 27 Fed. 616. And see *Horton* v. *Green*, 64 N. C. 64.

[5]*New Orleans, J. & G. N. R. Co.* v. *Allbritton*, 38 Miss. 242, 75 Am. Dec. 98; *Tullis* v. *Kidd*, 12 Ala. 648; *Stone* v. *Moore*, 83 Iowa, 186, 49 N. W. 76; *Roberts* v. *Johnson*, 58 N. Y. 613; *People* v. *Rice*, 159 N. Y. 400, 54 N. E. 48; *State* v. *Speaks*, 94 N. C. 865; *State* v. *Merriman*, 34 S. C. 17, 12 S. E. 619; *Sebastian* v. *State*, 41 Tex. Crim. Rep. 248, 53 S. W. 875; *Mason* v. *Fuller*, 45 Vt. 29. And see *Washington* v. *Cole*, 6 Ala. 212.

But one who is not licensed as a physician is prima facie incompetent to express a medical opinion; and his testimony should be received with great caution, and only after the court has become fully satisfied that, upon the subject as to which his opinion is required, he is fully competent to speak. *People* v. *Rice*, 159 N. Y. 400, 54 N. E. 48.

And the fact that a witness was a member of a board of health, and that he was a diagnostician of contagious diseases connected with the contagious bureau of the board, does not show him to be a medical expert qualified to give an opinion in an action for personal injuries; and the exclusion of evidence to that effect is not error. *Brown* v. *Third Ave. R. Co.* 19 Misc. 504, 43 N. Y. Supp. 1094.

[6]*DePhue* v. *State*, 44 Ala. 32.

And the fact that physicians giving their opinions in evidence as to the mode of death of a deceased person, in a prosecution for his murder, were in the employ of insurance companies which had policies of insurance on the life of the deceased, may go to their credibility, but does not render their opinions incompetent. *State* v. *Baptiste*, 26 La. Ann. 134.

[7]*Whitehouse* v. *Travelers Ins. Co.* 7 Ins. L. J. 23; *People* v. *Phelan*, 123 Cal. 551, 56 Pac. 424; *Jackson* v. *Boone*, 93 Ga. 662, 20 S. E. 46; *Siebert* v. *People*, 143 Ill. 571, 32 N. E. 431; *Hardiman* v. *Brown*, 162 Mass. 585, 39 N. E. 192; *State* v. *Wood*, 53 N. H. 484; *State* v. *Terrell*, 12 Rich. L. 321.

[8]A physician and surgeon, not only familiar with fractures, but with the X-ray process of determining whether a fracture had ever existed, is as well qualified to express an opinion as to the existence of a fracture from an examination made in this way as are ordinary experts who made their examination by means more commonly used in the profession. *Miller* v. *Dumon*, 24 Wash. 648, 64 Pac. 804.

[9]*Hardiman* v. *Brown*, 162 Mass. 585, 39 N. E. 192.

[10]*Fredrickson* v. *State*, 44 Tex. Crim. Rep. 288, 70 S. W. 754.

[11]*Ibid.*; *Wehner* v. *Lagerfelt*, 27 Tex. Civ. App. 520, 66 S. W. 221. And see *State* v. *Sheets*, 89 N. C. 543.

And a practising physician who had been called to see a few cases of gunshot wounds, but testified that he could not, by looking at the wound suffered by the deceased, tell whether it was made by a rifle ball or a pistol ball, is competent, in a trial for the murder of such person, to describe the character of the

no person practising physic and surgery shall testify in a professional capacity unless he shall have received a diploma from some incorporated medical society or college, or shall be a member of some county medical society legally organized, applies to the opinions of medical men called for on questions of science and skill as experts, and not to the testimony of medical men as to facts upon which any unprofessional witness might speak.[12] The question whether a physician is competent to testify as an expert is one for the decision of the court, and not for the jury.[13] And an objection to testimony of medical witnesses, that it is incompetent, does not raise the question whether or not they had the proper qualifications of medical experts required by law.[14]

546. Basis of the opinion.—As in other cases of opinion evidence, the opinion of a medical expert must be founded on a proper basis of fact, and is not admissible unless it is so founded.[15] It may be based, however, on his acquaintance with the person whose condition is under investigation;[16] and a physician who frequently met a person, and was well acquainted with him, and frequently attended him, has sufficient knowledge to form an intelligent opinion as to whether a given condition resulted from illness or injury.[17] And a medical opinion may also be based upon a medical examination;[18] and though the physician was called, and the examination made, a long time before or afterwards, he may testify as to the condition of the person

wound, but not to give his opinion that the wound was caused by a rifle ball. *Prince* v. *State*, 100 Ala. 144, 46 Am. St. Rep. 28, 14 So. 409.

[12]*Montgomery* v. *Scott*, 34 Wis. 338.

But the qualification of a physician under such a statute may properly be proved by oral testimony of the physician himself, without producing his diploma, or proved by record evidence of the incorporation of the institution or society which granted it, or that he is a member of one of the societies designated in the statute. *McDonald* v. *Ashland*, 78 Wis. 251, 47 N. W. 434.

[13]*Emerson* v. *Lowell Gaslight Co.* 6 Allen, 146; *Tullis* v. *Kidd*, 12 Ala. 648; *Budd* v. *Salt Lake City R. Co.* 23 Utah, 515, 65 Pac. 486.

And the decision of the trial court as to the competency of a medical expert to testify, though not conclusive, will not be disturbed unless clearly shown to be erroneous as a matter of law. *Germania L. Ins. Co.* v. *Lewin*, 24 Colo. 43, 65 Am. St. Rep. 215, 51 Pac. 488.

Or unless a palpable abuse of discretion appears. *Budd* v. *Salt Lake City R. Co.* 23 Utah, 515, 65 Pac. 486.

If there is any evidence to sustain the conclusion of the court that a witness was a medical expert, it is final, and not subject to review. *State* v. *Wilcox*, 132 N. C. 1120, 44 S. E. 625.

[14]*People* v. *Farrell* (Mich.) 100 N. W. 264.

[15]*Hunt* v. *State*, 9 Tex. App. 166.

[16]*Omaha & R. Valley R. Co.* v. *Brady*, 39 Neb. 27, 57 N. W. 767.

[17]*Louisville, N. A. & C. R. Co.* v. *Shires*, 108 Ill. 617. And see *Reinghaus* v. *Merchants' Life Asso.* 116 Iowa, 364, 89 N. W. 1113.

[18]*Omaha & R. Valley R. Co.* v. *Brady*, 39 Neb. 27, 57 N. W. 767; *State* v. *Foote*, 58 S. C. 218, 36 S. E. 551; *Galveston, H. & S. A. R. Co.* v. *Baumgarten*, 31 Tex. Civ. App. 253, 72 S. W. 78. And see *Manufacturers' Acci. Indemnity Co.* v. *Dorgan*, 22 L. R. A. 620, 7 C. C. A. 581, 16 U. S. App. 290, 58 Fed. 945.

And a proper foundation is laid for

at the time when he was called.[19] Nor is the opinion of a medical expert rendered incompetent by the fact that it was based in part upon the statements of the patient, or injured person;[20] though it cannot be based wholly on the patient's statements privately made to the expert.[21] And the opinions of medical men are admitted in evidence as to the various subjects of professional skill, though the witnesses founded them, not upon their own personal observation, but on evidence given by other witnesses;[22] and such opinions may be founded also upon a hypothetical case.[23] And where the medical expert has not made a personal examination of a patient, the proper practice is to put the question to the witness, citing the supposed facts

the introduction of the opinion of a medical witness based on the nature and character of fractures of a skull, as to whether such fractures could have been, or were likely to have been, produced or inflicted accidentally by falling into a sink or bin, where it appears that the physician giving the opinion had seen the skull, and examined the fractures, and seen and examined a model of the sink. *Davis* v. *State*, 38 Md. 15.

[19]*Block* v. *Milwaukee Street R. Co.* 89 Wis. 371, 27 L. R. A. 365, 46 Am. St. Rep. 849, 61 N. W. 1101; *Peoria, D. & E. R. Co.* v. *Berry*, 17 Ill. App. 47; *West Chicago Street R. Co.* v. *Dougherty*, 110 Ill. App. 204, Affirmed in 209 Ill. 241, 70 N. E. 586; *Louisville, N. A. & C. R. Co.* v. *Wright*, 115 Ind. 378, 7 Am. St. Rep. 432, 16 N. E. 145; *Sabine & E. T. R. Co.* v. *Ewing*, 7 Tex. Civ. App. 8, 26 S. W. 638.

The effect of the lapse of time is for the jury to consider. *Peoria, D. & E. R. Co.* v. *Berry*, 17 Ill. App. 47.

And the knowledge which a physician obtained in regard to the condition of an injured person, within a period of from two years to six months prior to the happening of the accident causing the injury, is not so remote as to be inadmissible for the purpose of forming a basis for comparison between her condition then and that which she exhibited at the time of an examination before trial. *Loudoun* v. *Eighth Ave. R. Co.* 16 App. Div. 152, 44 N. Y. Supp. 742.

[20]*Louisville, N. A. & C. R. Co.* v. *Snyder*, 117 Ind. 435, 3 L. R. A. 434, 10 Am. St. Rep. 60, 20 N. E. 284; *Louisville, N. A. & C. R. Co.* v. *Falvey*, 104 Ind. 409, 3 N. E. 389, 4 N. E. 908; *Barber* v. *Merriman*, 11 Allen, 322; *Block* v. *Milwaukee Street R. Co.* 89 Wis. 371, 27 L. R. A. 365, 46 Am. St. Rep. 849, 61 N. W. 1101; *Curran* v. *A. H. Stange Co.* 98 Wis. 598, 74 N. W. 377; *Quaife* v. *Chicago & N. W. R. Co.* 48 Wis. 513, 33 Am. Rep. 821, 4 N. W. 658.

[21]*Holloway* v. *Kansas City* (Mo.) 82 S. W. 89.

A physician cannot give to the jury, in an action for a personal injury, as evidence, the plaintiff's history of the case as detailed to him outside of the court room, or his opinion based on such history. *Atchison, T. & S. F. R. Co.* v. *Frazier*, 27 Kan. 463.

[22]*Newton* v. *State*, 21 Fla. 53; *State* v. *Baptiste*, 26 La. Ann. 134; *Baltimore City Pass. R. Co.* v. *Tanner*, 90 Md. 315, 45 Atl. 188; *State* v. *Clark*, 15 S. C. 403; *St. Louis S. W. R. Co.* v. *Hall* (Tex. Civ. App.) 81 S. W. 571; *Morrison* v. *State*, 40 Tex. Crim. Rep. 473, 51 S. W. 358.

Contra, in North Carolina, *Summerlin* v. *Carolina & N. W. R. Co.* 133 N. C. 550, 45 S. E. 898.

And a deposition of the plaintiff in an action for a personal injury, in which he gives a full and particular account of the alleged accident, and of the resulting injury and disability, as well as of precedent illnesses and injuries for a series of years, which is itself admissible in evidence, forms a sufficient basis for the opinion of medical experts as to the effect of injuries, and the cause of the injured person's condition. *Gilman* v. *Strafford*, 50 Vt. 723.

[23]*Omaha & R. Valley R. Co.* v. *Brady*, 39 Neb. 27, 57 N. W. 767; *Perkins* v. *Concord R. Co.* 44 N. H. 223; *Page* v. *New York*, 57 Hun, 123, 10 N. Y. Supp. 826; *Morrison* v. *State*, 40 Tex. Crim. Rep. 473, 51 S. W. 358. And see *Wendell* v. *Troy*, 39 Barb. 329.

hypothetically upon which the opinion is wanted.[24] A medical expert, however, cannot give an opinion based on nonexistent facts, or facts concerning which he had no knowledge;[25] and he cannot testify to an opinion formed upon information derived from private conversation with another;[26] or upon facts proved by other witnesses, where the evidence as to such facts is conflicting, since that would involve a decision of an issue for the jury.[27]

547. Certainty.—To entitle medical expert testimony as to apprehended consequences of a condition or injury to consideration, the consequences must be such as in the ordinary course of nature are reasonably certain to ensue; consequences which are contingent and speculative, or merely possible, are incompetent.[28] And the possible effects attending the progress of a disease, and its probable duration, and the results which may ensue to the person afflicted, cannot be given.[29] Nor are medical witnesses competent to testify as to what results are likely to follow from an injury.[30] And a physician cannot speculate upon the difference in effect of an injury to a frail person, and an injury to a healthy one;[31] and he is not competent to testify on an issue as to a fractured limb, as to the consequences of a

[24] *Louisville, N. A. & C. R. Co.* v. *Shires*, 108 Ill. 617; *Page* v. *State*, 61 Ala. 16.

[25] *Patterson* v. *South & North Ala. R. Co.* 89 Ala. 318, 7 So. 439.

[26] *Louisville, N. A. & C. R. Co.* v. *Shires*, 108 Ill. 617.

But a question calling for the opinion of a physician was not objectionable because it did not, in terms, call for an opinion based upon examinations made by him, where the court had informed the witness that he could state what he saw and heard, and upon that he could give his professional opinion. *Johnson* v. *Central Vermont R. Co.* 56 Vt. 707.

And it was competent for a physician who made an amputation and directed an assistant to dissect the leg after it was removed, to testify with reference to the results which he saw, though he had not been present during the time the dissection was actually in progress. *Steinacker* v. *Hills Bros. Co.* 91 App. Div. 521, 87 N. Y. Supp. 33.

[27] *Page* v. *State*, 61 Ala. 16; *Gulf, C. & S. F. R. Co.* v. *Bell*, 24 Tex. Civ. App. 579, 58 S. W. 614.

[28] *Strohm* v. *New York, L. E. & W. R. Co.* 96 N. Y. 305; *Briggs* v. *New York C. & H. R. R. Co.* 177 N. Y. 59, 69 N. E. 223; *People* v. *Rogers*, 13 Abb. Pr. N. S. 370; *People's Gaslight & Coke Co.* v. *Porter*, 102 Ill. App. 461. And see *Knights of Pythias* v. *Allen*, 104 Tenn. 623, 58 S. W. 241.

And medical expert testimony to the effect that consumption in the family of the father or mother of an injured person would have a bearing on the case that, in the course of years, probably would affect it, is conjectural and inadmissible, without first laying a foundation by showing that the injured person himself was consumptive, or reasonably certain of being consumptive. *Collins* v. *Janesville*, 99 Wis. 464, 75 N. W. 88.

[29] *Swenson* v. *Brooklyn Heights R. Co.* 15 Misc. 69, 36 N. Y. Supp. 445; *Moritz* v. *Interurban Street R. Co.* 84 N. Y. Supp. 163.

[30] *Atkins* v. *Manhattan R. Co.* 57 Hun, 102, 10 N. Y. Supp. 432; *Tozer* v. *New York, C. & H. R. R. Co.* 105 N. Y. 617, 11 N. E. 369, Reversing 38 Hun, 100; *Johnson* v. *Manhattan R. Co.* 52 Hun, 111, 4 N. Y. Supp. 848; *Strohm* v. *New York, L. E. & W. R. Co.* 96 N. Y. 305; *Huba* v. *Schenectady R. Co.* 85 App. Div. 199, 83 N. Y. Supp. 157; *Collins* v. *Janesville*, 99 Wis. 464, 75 N. W. 88; *Higgins* v. *United Traction Co.* 89 N. Y. Supp. 76.

[31] *Ilwaco R. & Nav. Co.* v. *Hedrick*, 1 Wash. 446, 22 Am. St. Rep. 169, 25 Pac. 335.

hypothetical second fracture.[32] Expert testimony as to future consequences which are reasonably expected to follow an injury, however, may be given for the purpose of enhancing the damages to be awarded.[33] And a physician may testify as to what results will follow with reasonable certainty, from conditions observed by him.[34] Nor does the uncertainty of a medical opinion as to probable future results, founded upon present conditions, prevent it from being competent;[35] and a physician may testify as to the probable length of time that a diseased or injured person will live, though stating that he can only give the probability from the history of other similar cases.[36] Nor is the opinion of a physician that one had been restored to a former condition speculative;[37] and the fact that a person's condition was deemed incurable does not render the physician's opinion that it was caused by an injury, incompetent as speculative.[38]

548. Subject-matter of medical expert evidence; general rules.—Unless the opinions of physicians and surgeons can be regarded as involving some matter of medical science or technical skill, they are not admissible as expert evidence;[39] and a physician or surgeon tes-

[32]*Lincoln* v. *Saratoga & S. R. Co.* 23 Wend. 425.

[33]*Strohm* v. *New York, L. E. & W. R. Co.* 96 N. Y. 305; *Blate* v. *Third Ave. R. Co.* 16 App. Div. 287, 44 N. Y. Supp. 615.

[34]*Forde* v. *Nichols*, 36 N. Y. S. R. 729, 12 N. Y. Supp. 922. And see *Goodrich* v. *People*, 3 Park. Crim. Rep. 622.

And a physician is competent to give an opinion as to the reasonable probability of an injured person's ultimate recovery, as distinguished from reasonable certainty of recovery. *Block* v. *Milwaukee Street R. Co.* 89 Wis. 371, 27 L. R. A. 365, 46 Am. St. Rep. 849, 61 N. W. 1101.

But the opinion of a medical witness as to the probable future result of an injury is incompetent, where he declines to say that such a result will ensue with reasonable certainty. *De Soucey* v. *Manhattan R. Co.* 39 N. Y. S. R. 79, 15 N. Y. Supp. 108.

[35]*Mitchell* v. *Tacoma R. & Motor Co.* 13 Wash. 560, 43 Pac. 528; *Matteson* v. *New York C. R. Co.* 62 Barb. 364; *Macer* v. *Third Ave. R. Co.* 15 Jones & S. 461; *Wallace* v. *Vacuum Oil Co.* 128 N. Y. 579, 27 N. E. 956; *Crites* v. *New Richmond*, 98 Wis. 55, 73 N. W. 322.

And expert evidence of a physician that a person exhibited symptoms which were equally characteristic of two different internal conditions, either of which conditions might have been occasioned by the accident for which suit was brought, was not inadmissible simply because the witness was unable to say with certainty which of the internal conditions actually existed. *Quinn* v. *O'Keeffe*, 9 App. Div. 68, 41 N. Y. Supp. 116.

[36]*Alberti* v. *New York, L. E. & W. R. Co.* 118 N. Y. 77, 6 L. R. A. 765, 23 N. E. 35.

[37]*Clegg* v. *Metropolitan Street R. Co.* 1 App. Div. 207, 39 N. Y. Supp. 130.

[38]*Jones* v. *Utica & B. River Co.* 40 Hun, 349.

[39]*Dillard* v. *State*, 58 Miss. 368; *Cook* v. *State*, 24 N. J. L. 843; *Allen* v. *St. Louis Transit Co.* (Mo.) 81 S. W. 1142; *People* v. *Wright*, 136 N. Y. 625, 32 N. E. 629.

But a question asked a physician, whether in his experience as a physician, or in his reading, he ever met with a case where similar conditions to those in the case in hand existed, is not subject to objection as not calling for medical testimony. *State* v. *White*, 76 Mo. 96.

tifying as such cannot give his opinion as such on a question which the jury is capable of answering without the aid of professional skill and experience,[40] such as that of proper compensation for a personal injury,[41] or that of the competency of another expert to express a correct opinion;[42] and a question as to what another physician would or could do under stated circumstances which are only imaginary is incompetent as speculative.[43]

The opinion of a witness possessing medical skill, however, is admissible whenever the subject-matter of the inquiry is such that inexperienced persons are likely to prove incapable of forming a correct judgment upon it without such assistance, or when it so far partakes of the nature of a science as to require previous study or habit.[44] The question as to what is a matter of science concerning which an expert may testify, and what a matter of common experience, is always one for the court.[45]

549. Apparent condition.—Whether a person is sick or diseased,[46] or apparently in sound health,[47] or apparently better or worse,[48] is not a question of medical skill, but one which may be determined and characterized by a person of ordinary experience and observation; and so is the question whether a limb is broken.[49] The manifesta-

[40]*Brown* v. *State*, 55 Ark. 593, 18 S. W. 1051; *Kennedy* v. *People*, 39 N. Y. 245.

[41]*Muldraugh's Hill, C. & C. Turnp. Co.* v. *Maupin*, 79 Ky. 101.

[42]*Tullis* v. *Kidd*, 12 Ala. 648; *Birmingham R. & Electric Co.* v. *Ellard*, 135 Ala. 433, 33 So. 276.

[43]*Jennings* v. *Supreme Council, L. A. Ben. Asso.* 81 App. Div. 76, 81 N. Y. Supp. 90; *State* v. *Pike*, 65 Me. 111; *Root* v. *Boston Elev. R. Co.* 183 Mass. 418, 67 N. E. 365.

And the question whether a physician in refusing to consult with another physician had honorably and faithfully discharged his duty to the medical profession is one for the jury, in an action involving it, and not for an expert. *Ramadge* v. *Ryan*, 9 Bing. 333, 2 Moore & S. 421, 2 L. J. C. P. N. S. 7.

And an interrogatory addressed to a medical witness, as to whether it is good medical practice to say you open a thumb to cut off a nerve because it is already partly cut off, is improper; the question involving no medical act or practice whatever, but only a reason assigned for an act. *Twombly* v. *Leach*, 11 Cush. 397.

[44]*Cook* v. *State*, 24 N. J. L. 843; *Cole* v. *Fall Brook Coal Co.* 87 Hun, 584, 34 N. Y. Supp. 572.

[45]*Dillard* v. *State*, 58 Miss. 368.

[46]*Dominick* v. *Randolph*, 124 Ala. 557, 27 So. 481.

And whether or not a person made the same complaint the day previous that she had made years before is a matter of fact to which anyone can testify without reference to his being an expert, and not a conclusion of the witness. *Birmingham R. & Electric Co.* v. *Ellard*, 135 Ala. 433, 33 So. 276.

And testimony that an injured person was confined to his bed, and unable to walk without aid, is a matter of fact relating to the physical condition of such person, and not a matter of opinion to be testified to by an expert, or with reference to which the facts upon which it is based must be disclosed. *Missouri, K. & T. R. Co.* v. *Wright*, 19 Tex. Civ. App. 47, 47 S. W. 56.

[47]*Baldi* v. *Metropolitan Ins. Co.* 18 Pa. Super. Ct. 599.

[48]*King* v. *Second Ave. R. Co.* 75 Hun, 17, 26 N. Y. Supp. 973.

[49]*Montgomery* v. *Scott*, 34 Wis. 338.

But while the question as to the effect of a fracture and amputation of a limb upon the injured person's capacity

tions of pain and suffering are a matter of common knowledge.[50] And testimony of a medical expert that an injured person was a physical and mental wreck, and could obtain absolutely no enjoyment of life, is incompetent as a mere general conclusion.[51] Nor are physicians experts upon the question of the soundness of a slave.[52] But physicians are experts as to diseases, whether in slaves or in others.[53] And the question as to what certain symptoms indicate is a matter of medical skill, and a particular subject for medical testimony;[54] and a physician may be asked to describe the symptoms which ordinarily and necessarily accompany a specified trouble or injury.[55] And while it may be common knowledge that one coming in personal contact with another infected with a contagious disease, or occupying the same room with him, is exposed to it, whether or not upon a given state of facts a person will be deemed to have been exposed is a medical question for an expert.[56] And the contagious character of the disease, and the length of time its poison retains its vitality, are also medical

to perform manual labor would not ordinarily be one for a medical expert, if an artificial limb is procured, the conditions resulting from the use of such limb will be, to a certain extent at least, more clearly within the knowledge of, and be better understood by, a physician than by a person engaged in the ordinary affairs of life; and in such case a medical opinion is warranted. *Southern P. Co.* v. *Hall*, 41 C. C. A. 50, 100 Fed. 760.

[50]*Chicago, B. & Q. R. Co.* v. *Martin*, 112 Ill. 16, 1 N. E. 111; *Hall* v. *Austin*, 73 Minn. 134, 75 N. W. 1120.

But the opinion of a medical man as to whether a person who had suffered an amputation of a hand and arm experienced the pain of an imaginary hand and arm is within the rule of admissibility, and not subject to objection that such pain is imaginary, and a mere delusion, and not the direct or natural result of the injury. *Hickenbottom* v. *Delaware, L. & W. R. Co.* 122 N. Y. 91, 25 N. E. 279.

[51]*Sterling* v. *Detroit* (Mich.) 10 Det. L. N. 399, 95 N. W. 986.

[52]*Hook* v. *Stovall*, 26 Ga. 704. But see *Tatum* v. *Mohr*, 21 Ark. 349.

[53]*Hook* v. *Stovall*, 26 Ga. 704; *Tatum* v. *Mohr*, 21 Ark. 349.

And a physician is competent to testify as to his opinion, in an action for damages for breach of a warranty of soundness of a slave, that in future the value of the services of the slave would be less than the value of medical attention she would require. *Roberts* v. *Fleming*, 31 Ala. 683.

[54]*Quinn* v. *O'Keefe*, 9 App. Div. 68, 41 N. Y. Supp. 116.

[55]*Cole* v. *Fall Brook Coal Co.* 87 Hun, 584, 34 N. Y. Supp. 572.

A physician is competent to give an opinion as to whether the presence of flesh on a woman was an indication of a named disease or trouble. *Benjamin* v. *Holyoke Street R. Co.* 160 Mass. 3, 39 Am. St. Rep. 446, 35 N. E. 95.

And a question in a prosecution for bastardy, on the subject of a premature birth, asking a physician for an opinion as to the maturity or immaturity of a child, based upon the want of eyebrows, hair, and toe nails at its birth, is a proper one to address to a medical expert. *Daegling* v. *State*, 56 Wis. 586, 14 N. W. 593.

But testimony of a physician based on the treatment of an injured person, as to symptoms due entirely to her injuries, is incompetent as usurping the functions of the jury, in requiring him to decide that the symptoms arose from the injuries. *Atkins* v. *Manhattan R. Co.* 57 Hun, 102, 10 N. Y. Supp. 432.

[56]*Smith* v. *Emery*, 11 App. Div. 10, 42 N. Y. Supp. 258.

Whether in a particular case conditions would exist for the communication of contagion to a person, rendering him exposed to the disease, may be a question of medical science and skill. *Ibid.*

questions presenting subjects for professional opinion;[57] and so are questions as to the tendency of certain conditions to produce sickness,[58] or to make injury more probable.[59] Nor is a physician incompetent to give an opinion as to vital spots and places where it is dangerous to receive an injury or blow,[60] or as to the power of resistance of a skull, and as to the force requisite to break it.[61]

550. Cause of existing condition.—The nature and extent of injuries, and the present condition of a person ill or injured, are questions peculiarly within the province of medical skill and science, and always proper to be addressed to an expert.[62] And a physician may give his opinion based on such condition and the nature of the injuries, on the question as to the causes from which they arose,[63] and

[57]*Ibid.*

And medical experts may give an opinion based upon a proper basis as to when and where a person contracted a disease. *Kliegel* v. *Aitken*, 94 Wis. 432, 35 L. R. A. 249, 59 Am. St. Rep. 900, 69 N. W. 67.

But where the symptons and appearance of two diseases are indistinguishable, a physician cannot be permitted to express to the jury his opinion that a person was afflicted with one of the diseases, where the opinion is founded in part upon the fact that that disease existed in another person; since the opinion thus expressed would necessarily imply the further opinion that there had been such contact between the two persons as to lead to the communication of the disease; the question of contact not being the subject-matter of a professional opinion. *Moore* v. *State*, 17 Ohio St. 521.

[58]*Eufaula* v. *Simmons*, 86 Ala. 515, 6 So. 47.

[59]*Gulf, C. & S. F. R. Co.* v. *Harriett*, 80 Tex. 73, 15 S. W. 556.

[60]*Sebastian* v. *State*, 41 Tex. Crim. Rep. 248, 53 S. W. 875.

[61]*Kennedy* v. *People*, 39 N. Y. 245.

And the opinions of competent medical witnesses who attended the autopsy of a child killed by blows on the head, that the injuries to the head could not have been produced at the same time and by one blow, are within the range of experience of medical experts, and are competent in a prosecution for the killing. *Com.* v. *Piper*, 120 Mass. 185.

[62]*Matteson* v. *New York C. R. Co.* 35 N. Y. 487, 91 Am. Dec. 67; *Jones* v. *Utica & B. River R. Co.* 40 Hun, 349; *Cole* v. *Fall Brook Coal Co.* 87 Hun, 584, 34 N. Y. Supp. 572; *Tatum* v. *Mohr*, 21 Ark. 349; *Louisville, N. A. & C. R. Co.* v. *Falvey*, 104 Ind. 409, 3 N. E. 389, 4 N. E. 908; *Erickson* v. *Barber Bros.* 83 Iowa, 367, 49 N. W. 838; *Robinson* v. *St. Louis & Suburban R. Co.* 103 Mo. App. 110, 77 S. W. 493; *Oliver* v. *Columbia, N. & L. R. Co.* 65 S. C. 1, 43 S. E. 307; *Jones* v. *White*, 11 Humph. 268.

It is always competent to ask a medical witness what observations he made, and what was the condition of a patient he was called upon to examine, without reference to the purpose of the examination, though the purpose may exert some influence on the credibility of the witness. *Louisville, N. A. & C. R. Co.* v. *Falvey*, 104 Ind. 409, 3 N. E. 389, 4 N. E. 908.

And an expert, competent to testify upon the general subject, may, as part of his description of the nature and symptoms of a disease, be permitted on request of either party to state whether or not the disease was difficult to diagnose. *Baldi* v. *Metropolitan Ins. Co.* 18 Pa. Super. Ct. 599.

[63]*Hunter* v. *Third Ave. R. Co.* 20 Misc. 432, 45 N. Y. Supp. 1044; *Griffith* v. *Utica & M. R. Co.* 43 N. Y. S. R. 835, 17 N. Y. Supp. 692; *Matteson* v. *New York C. R. Co.* 62 Barb. 364, Affirmed in 35 N. Y. 487, 91 Am. Dec. 67; *McClain* v. *Brooklyn City R. Co.* 116 N. Y. 459, 22 N. E. 1062; *Stouter* v. *Manhattan R. Co.* 127 N. Y. 661, 27 N. E. 805; *Quinn* v. *O'Keeffe*, 9 App. Div. 68, 41 N. Y. Supp. 116; *Turner* v. *Newburgh*, 109 N. Y. 301, 4 Am. St. Rep. 453, 16 N. E. 344; *Johnson* v. *Steam Gauge & Lantern Co.* 146 N. Y. 152, 40 N. E. 773. Affirming 72 Hun, 535, 25 N. Y. Supp.

as to whether they were produced by violence or disease,[64] and as to whether such a condition could have existed if described circumstances had taken place,[65] such opinions not being objectionable as speculative.[66] And such opinions may be founded upon personal examination and observation;[67] or they may be founded upon a statement of the nature of the injury, and subsequent symptoms, and present physical condition, as testified to by others;[68] or upon an hypothe-

689; *Filer* v. *New York C. R. Co.* 49 N. Y. 42, 10 Am. Rep. 327; *McDonald* v. *New York, C. & St. L. R. Co.* 13 Misc. 651, 34 N. Y. Supp. 921; *Wagner* v. *Metropolitan Street R. Co.* 79 App. Div. 591, 80 N. Y. Supp. 191; *Patterson* v. *South & North Ala. R. Co.* 89 Ala. 318, 7 So. 437; *Chatsworth* v. *Rowe*, 166 Ill. 114, 46 N. E. 763; *Kankakee* v. *Steinbach*, 89 Ill. App. 513; *Illinois C. R. Co.* v. *Treat*, 179 Ill. 576, 54 N. E. 290; *Louisville, N. A. & C. R. Co.* v. *Wood*, 113 Ind. 544, 14 N. E. 572, 16 N. E. 197; *Pennsylvania Co.* v. *Frund*, 4 Ind. App. 469, 30 N. E. 1116; *Louisville, N. A. & C. R. Co.* v. *Lucas*, 119 Ind. 583, 6 L. R. A. 193, 21 N. E. 968; *State* v. *Porter*, 34 Iowa, 131; *State* v. *Morphy*, 33 Iowa, 270, 11 Am. Rep. 122; *Sachra* v. *Manilla*, 120 Iowa, 562, 95 N. W. 198; *Flaherty* v. *Powers*, 167 Mass. 61, 44 N. E. 1074; *Davis* v. *State*, 38 Md. 15; *Lacas* v. *Detroit City R. Co.* 92 Mich. 412, 52 N. W. 745; *Brazil* v. *Peterson*, 44 Minn. 212, 46 N. W. 331; *Donnelly* v. *St. Paul, C. R. Co.* 70 Minn. 278, 73 N. W. 157; *Tullis* v. *Rankin*, 6 N. D. 44, 35 L. R. A. 449, 66 Am. St. Rep. 586, 68 N. W. 187; *State* v. *Ogden*, 39 Or. 195, 65 Pac. 449; *Com.* v. *Crossmire*, 156 Pa. 308, 27 Atl. 40; *Easler* v. *Southern R. Co.* 59 S. C. 311, 37 S. E. 938; *State* v. *Chiles*, 44 S. C. 338, 22 S. E. 339; *Texas C. R. Co.* v. *Burnett*, 80 Tex. 536, 16 S. W. 320; *Galveston, H. & S. A. R. Co.* v. *Baumgarten*, 31 Tex. Civ. App. 253, 72 S. W. 78; *Missouri, K. & T. R. Co.* v. *Criswell* (Tex. Civ. App.) 78 S. W. 388; *Taylor* v. *State*, 41 Tex. Crim. Rep. 148, 51 S. W. 1106; *Vosburg* v. *Putney*, 86 Wis. 278, 56 N. W. 480; *Carthaus* v. *State*, 78 Wis. 560, 47 N. W. 629; *Smalley* v. *Appleton*, 75 Wis. 18, 43 N. W. 826; *Block* v. *Milwaukee Street R. Co.* 89 Wis. 375, 27 L. R. A. 365, 46 Am. St. Rep. 849, 61 N. W. 1101.

And a physician may give an opinion that the condition of the lungs of a person found dead in shallow water was what it would have been if he had fallen, and been stunned in the water. *Manufacturers' Acci. Indemnity Co.* v. *Dorgan*, 22 L. R. A. 620, 7 C. C. A. 581, 16 U. S. App. 290, 58 Fed. 945.

And whether a person's injuries were enhanced by reason of a natural defect in an injured limb, and the reasons for the opinion, are proper subjects for the testimony of a medical expert; and the fact that that was one of the points in issue does not render the evidence incompetent. *Nebonne* v. *Concord R. Co.* 68 N. H. 296, 44 Atl. 521.

[64]*Matteson* v. *New York C. R. Co.* 35 N. Y. 487, 91 Am. Dec. 67; *Jones* v. *Utica & B. River R. Co.* 40 Hun, 349; *Knights of Pythias* v. *Allen*, 104 Tenn. 623, 58 S. W. 241.

[65]*Dixon* v. *State* (Ala.) 36 So. 784; *Birmingham R. & Electric Co.* v. *Ellard*, 135 Ala. 433, 33 So. 276; *Haviland* v. *Manhattan R. Co.* 40 N. Y. S. R. 773, 15 N. Y. Supp. 898.

[66]*McClain* v. *Brooklyn City R. Co.* 116 N. Y. 459, 22 N. E. 1062; *Hurley* v. *New York & B. Brewing Co.* 13 App. Div. 167, 43 N. Y. Supp. 259.

[67]*McClain* v. *Brooklyn City R. Co.* 116 N. Y. 459, 28 N. E. 1062; *State* v. *Chiles*, 44 S. C. 338, 22 S. E. 339; *Livingston* v. *Com.* 14 Gratt. 592; *Denver & R. G. R. Co.* v. *Roller*, 49 L. R. A. 77, 41 C. C. A. 22, 100 Fed. 738.

[68]*Donnelly* v. *St. Paul City R. Co.* 70 Minn. 278, 73 N. W. 157; *Livingston* v. *Com.* 14 Gratt. 592.

But a question asking for the opinion of a medical witness as to the cause of a particular difficulty under which a patient was laboring at the time the witness made the examination is improper, where it is not so framed as to confine the witness in giving an opinion to the facts he had personally testified to, and to exclude all other influences or knowledge which he may have had. *Hitchcock* v. *Burgett*, 38 Mich. 501.

sis stating the facts of the case upon which an opinion is desired.[69] And a physician may properly give an opinion as to the cause of a change in condition between two different periods or examinations;[70] or, as to whether there might have been an injury which would account for the change, besides the injury in question;[71] and a medical opinion as to whether a described cause would produce existing conditions is competent.[72]

A physician cannot be asked his opinion, however, as to what produced the condition of a patient as he observed it, where the facts of such condition are not stated.[73] And an opinion that an injury resulted from a certain designated act, which is the one upon which the action is based, as distinguished from an opinion that certain causes would produce certain results, is improper as usurping the province of the jury.[74] The examination of a medical expert in a personal injury case is always as to what was the condition of the patient after the injury; and he is not called upon to state whether that

[69] *Filer* v. *New York C. R. Co.* 49 N. Y. 42, 10 Am. Rep. 327; *Missouri, K. & T. R. Co.* v. *Hawk*, 30 Tex. Civ. App. 142, 69 S. W. 1037.

And when on appeal the hypothesis does not appear, the question asking for the opinion is not subject to objection that it calls upon the witness to determine a question belonging to the jury. *Missouri, K. & T. R. Co.* v. *Hawk*, 30 Tex. Civ. App. 142, 69 S. W. 1037.

[70] *Matteson* v. *New York C. R. Co.* 35 N. Y. 487, 91 Am. Dec. 67.

[71] *Friess* v. *New York C. & H. R. R. Co.* 67 Hun, 205, 22 N. Y. Supp. 104.

And a physician testifying from personal observation as an expert may properly state that he did not discover any perceptible change in a person examined, from her condition at a previous examination. *Knox* v. *Wheelock*, 56 Vt. 191.

[72] *Illinois C. R. Co.* v. *Treat*, 75 Ill. App. 327; *Dean* v. *Sharon*, 72 Conn. 667, 45 Atl. 963; *Baltimore City Pass. R. Co.* v. *Tanner*, 90 Md. 315, 45 Atl. 188; *Graves* v. *Battle Creek*, 95 Mich. 266, 19 L. R. A. 641, 35 Am. St. Rep. 561, 54 N. W. 757; *Bowe* v. *St. Paul*, 70 Minn. 341, 73 N. W. 184; *Anthony* v. *Smith*, 4 Bosw. 503; *Conrad* v. *Ellington*, 104 Wis. 367, 80 N. W. 456.

And a physician who had described the nature of an injury may give an opinion in a prosecution for the homicide as to whether the club with which it was shown the accused struck the person killed could, by one blow, produce the result which he described as a witness. *People* v. *Rogers*, 13 Abb. Pr. N. S. 370.

[73] *Van Deusen* v. *Newcomer*, 40 Mich. 90; *Matteson* v. *New York C. R. Co.* 62 Barb. 364.

[74] *Jones* v. *Portland*, 88 Mich. 598, 16 L. R. A. 437, 50 N. W. 731; *Gregory* v. *New York, L. E. & W. R. Co.* 55 Hun, 303, 8 N. Y. Supp. 525; *Illinois C. R. Co.* v. *Smith*, 208 Ill. 608, 70 N. E. 628; *Brant* v. *Lyons*, 60 Iowa, 172, 14 N. W. 227; *Riser* v. *Southern R. Co* 67 S. C. 419, 46 S. E. 47; *Easler* v. *Southern R. Co.* 59 S. C. 311, 37 S. E. 938; *Travelers' Ins. Co.* v. *Thornton*, 119 Ga. 455, 46 N. E. 678.

But the opinion of a physician in an action for the death of a child from heart disease, alleged to have been produced by fright suffered from ejection from a railway train, as to whether fright would produce heart trouble, is competent, and not objectionable as usurping the functions of the jury. *Illinois C. R. Co.* v. *Latimer*, 128 Ill. 163, 21 N. E. 7.

And in *Donnelly* v. *St. Paul City R. Co.* 70 Minn. 278, 73 N. W. 157, the distinction between asking a medical expert whether in his opinion certain causes might produce certain results, and asking him whether in his opinion they did produce such results, was repudiated.

condition is the consequence of the injury.[75] Nor is the opinion of an expert as to the seriousness or the triviality of an injury competent, when it is feasible to elicit the facts upon which the opinion is based.[76]

551. Cause of death.—The opinions of medical experts as to the cause of death are always admissible when such cause is involved in doubt, and there are no witnesses to the occurrence.[77] And where death might have resulted from different causes, an expert may give his opinion as to which cause produced the result;[78] and he may also give an opinion as to how the injuries were inflicted;[79] and as to whether or not they were inflicted before death;[80] or that they could not have been inflicted in a designated way;[81] or as to the length of time since death took place.[82] Such opinions are admissible when founded either on personal knowledge of the facts of the case, or upon a statement of the case as testified to by others;[83] and they may

[75]*Page* v. *New York*, 57 Hun, 123, 10 N. Y. Supp. 826.

[76]*Stoothoff* v. *Brooklyn Heights R. Co.* 50 App. Div. 585, 64 N. Y. Supp. 243.

[77]*Simon* v. *State*, 108 Ala. 27, 18 So. 731; *Supreme Tent, K. of M.* v. *Stensland*, 206 Ill. 126, 68 N. E. 1098; *State* v. *Tippet*, 94 Iowa, 646, 63 N. W. 445; *State* v. *Crenshaw*, 32 La. Ann. 406; *People* v. *Foley*, 64 Mich. 148, 31 N. W. 94; *Donnelly* v. *St. Paul C. R. Co.* 70 Minn. 278, 73 N. W. 157; *People* v. *Benham*, 160 N. Y. 402, 55 N. E. 11; *Com.* v. *Crossmire*, 156 Pa. 304, 27 Atl. 40; *Powell* v. *State*, 13 Tex. App. 244; *Shelton* v. *State*, 34 Tex. 663; *Wright* v. *Hardy*, 22 Wis. 348; *Boyle* v. *State*, 61 Wis. 440, 21 N. W. 289.

And a description of a wound caused by a blow, and the opinion of a surgeon as to whether it was sufficient to cause death, is proper testimony in a prosecution for the killing. *Perkins* v. *State*, 5 Ohio C. C. 597, 3 Ohio C. D. 292.

[78]*People* v. *Hare*, 57 Mich. 505, 24 N. W. 845; *State* v. *Pike*, 65 Me. 111; *State* v. *Harris*, 63 N. C. 1; *Supreme Tent, K. of M.* v. *Stensland*, 206 Ill. 124, 68 N. E. 1098; *State* v. *Wilcox*, 132 N. C. 1120, 44 S. E. 625.

And a physician, called as a witness in an action for damages for injuries received through the explosion of a steamboat boiler, is competent to testify as to what would have been the indications if a person were suffocated and afterwards fell overboard, though there was no evidence of the person in question having fallen overboard, except that she was found in the water. *Erickson* v. *Smith*, 2 Abb. App. Dec. 64.

[79]*Com.* v. *Crossmire*, 156 Pa. 304, 27 Atl. 40; *Ebos* v. *State*, 34 Ark. 529.

[80]*People* v. *Foley*, 64 Mich. 148, 31 N. W. 94.

And a duly qualified physician is competent to give an opinion as to whether or not the body of a deceased person had been moved after death. *State* v. *Merriman*, 34 S. C. 16, 12 S. E. 619.

[81]*State* v. *Johnson*, 66 S. C. 23, 44 S. E. 58.

But whether the death of a person whose body shows only certain described bruises and injuries could have been caused by collision with a railway train is a matter of common observation, and not a subject of expert testimony. *Hellyer* v. *People*, 186 Ill. 550, 58 N. E. 245.

[82]*State* v. *Mortensen*, 26 Utah, 312, 73 Pac. 562, 633.

[83]*Donnelly* v. *St. Paul City R. Co.* 70 Minn. 278, 73 N. W. 157; *Page* v. *State*, 61 Ala. 16.

In *State* v. *Bowman*, 78 N. C. 509, however, it was held that the opinion of a physician as to the cause of death was not competent in a prosecution for murder, where it was based upon the statements of other witnesses as to circumstances immediately preceding death, and the appearance of the deceased after death, as distinguished from a hypothetical case, or knowledge possessed by the witness himself to which he testified.

be based on the previous condition of the person and the subsequent condition of the body,[84] or upon the condition and position of the body, and the pathological condition of its internal organs after death as ascertained by examination.[85]

Physicians and surgeons may likewise, upon facts testified to either by themselves or by others, give their opinions as to whether a particular blow or injury would be adequate to cause death;[86] or even whether such injury was the actual cause of death in the particular case.[87] And physicians who had examined a person's wounds before and after death may give an opinion as to whether an instrument identified as the one used was such as to produce death when used in the manner described.[88] And a physician may properly testify that he knows no disease which would produce death with certain described symptoms.[89] But a physician cannot be asked whether the testimony and described autopsy were such as to enable a physician to tell the cause of death with any certainty; the question should recite the scope and character of the autopsy.[90] And whether a deceased person might have killed himself by falling on his own knife is not a question of medical science, but an ordinary question of fact.[91]

552. Future effect of injury or disease.—Physicians and surgeons may testify as to the probable result of known injuries upon the health and life of the person injured,[92] and as to the probable duration of the

[84] *People* v. *Foley*, 64 Mich. 148, 31 N. W. 94; *Simon* v. *State*, 108 Ala. 27, 18 So. 731.

[85] *Boyle* v. *State*, 61 Wis. 440, 21 N. W. 289; *State* v. *Tippet*, 94 Iowa, 646, 63 N. W. 445.

[86] *Livingston* v. *Com.* 14 Gratt. 592; *Lovelady* v. *State*, 14 Tex. App. 545.

[87] *Livingston* v. *Com.* 14 Gratt. 592.

And physicians who had made a post-mortem examination of a deceased person may testify as to whether a clot of blood which they found could have existed a designated number of hours without causing death. *State* v. *Pike*, 65 Me. 111.

[88] *Waite* v. *State*, 13 Tex. App. 169.

[89] *People* v. *Foley*, 64 Mich. 148, 31 N. W. 94.

[90] *Manufacturers' Acci. Indemnity Co.* v. *Dorgan*, 22 L. R. A. 620, 7 C. C. A. 581, 16 U. S. App. 290, 58 Fed. 945.

[91] *State* v. *Bradley*, 34 S. C. 136, 13 S. E. 315.

[92] *Barr* v. *Kansas*, 121 Mo. 22, 25 S. W. 562; *Robinson* v. *St. Louis & S. R. Co.* 103 Mo. App. 110, 77 S. W. 493; *Evansville & T. H. R. Co.* v. *Crist*, 116 Ind. 446, 2 L. R. A. 450, 9 Am. St. Rep. 865, 19 N. E. 310; *Louisville, N. A. & C. R. Co.* v. *Wood*, 113 Ind. 544, 14 N. E. 572, 16 N. E. 197; *Pennsylvania Co.* v. *Frund*, 4 Ind. App. 469, 30 N. E. 1116; *Williams* v. *State*, 64 Md. 384, 1 Atl. 887; *Langworthy* v. *Green Twp.* 88 Mich. 207, 50 N. W. 130; *People* v. *Hare*, 57 Mich. 505, 24 N. W. 843; *Clegg* v. *Metropolitan Street R. Co.* 1 App. Div. 207, 37 N. Y. Supp. 130; *Magee* v. *Troy*, 48 Hun, 383, 1 N. Y. Supp. 24; *Stever* v. *New York C. & H. R. R. Co.* 7 App. Div. 392, 39 N. Y. Supp. 944; *Jones* v. *Utica & B. River R. Co.* 40 Hun, 349; *Filer* v. *New York C. R. Co.* 49 N. Y. 42, 10 Am. Rep. 327; *Wendell* v. *Troy*, 39 Barb. 329; *Maher* v. *New York C. & H. R. R. Co.* 20 App. Div. 161, 46 N. Y. Supp. 847; *Walden* v. *Jamestown*, 79 App. Div. 433, 80 N. Y. Supp. 65; *Lincoln* v. *Saratoga & S. R. Co.* 23 Wend. 425; *Rosenblatt* v. *Cohen House Wrecking Co.* 91 App. Div. 413, 86 N. Y. Supp. 801; *McCue* v. *Knoxville Burrough*, 146 Pa. 580, 23 Atl. 439; *Stembridge* v. *Southern R. Co.* 65 S. C. 440, 43 S. E. 968; *Oliver* v.

injuries,[93] and as to the probability that the injury will cause future pain and suffering,[94] as well as the effect of the injury upon the future ability to work or attend to other affairs of life of the person injured,[95] and as to ultimate curability, or probable recovery,[96] or

Columbia, N. & L. R. Co. 65 S. C. 1, 43 S. E. 307; *Sabine & E. T. R. Co.* v. *Ewing*, 7 Tex. Civ. App. 8, 26 S. W. 638; *Houston Electric Co.* v. *McDade* (Tex. Civ. App.) 79 S. W. 100; *Abbot* v. *Dwinnell*, 74 Wis. 514, 43 N. W. 496.

And a physician who testified in an action for personal injuries, that the injuries might be serious, should be permitted on cross-examination to state whether or not he regarded them as permanent, for the purpose of making his statement more definite. *Collins* v. *Janesville*, 107 Wis. 436, 83 N. W. 695.

[93]*Abbot* v. *Dwinnell*, 74 Wis. 514, 43 N. W. 496; *Chicago, R. I. & P. R. Co.* v. *Archer*, 46 Neb. 907, 65 N. W. 1043; *Consolidated Traction Co.* v. *Lambertson*, 59 N. J. L. 297, 36 Atl. 100; *Pfau* v. *Alteria*, 23 Misc. 693, 52 N. Y. Supp. 88; *Rhines* v. *Royalton*, 40 N. Y. S. R. 662, 15 N. Y. Supp. 944; *Wallace* v. *Vacuum Oil Co.* 128 N. Y. 579, 27 N. E. 956; *Barkley* v. *New York C. & H. R. R. Co.* 35 App. Div. 228, 54 N. Y. Supp. 766; *Ayres* v. *Delaware, L. & W. R. Co.* 158 N. Y. 255, 53 N. E. 22; *Erickson* v. *Barber Bros.* 83 Iowa, 367, 49 N. W. 838.

And whether or not injuries caused by railroad accidents are more serious than other injuries exhibiting the same external appearance is a proper subject for the opinion of a medical expert. *Taylor* v. *Grand Trunk R. Co.* 48 N. H. 304, 2 Am. Rep. 229.

[94]*Holman* v. *Union Street R. Co.* 114 Mich. 208, 72 N. W. 202; *Wilkins* v. *Missouri Valley* (Iowa) 96 N. W. 868; *Buel* v. *New York C. R. Co.* 31 N. Y. 314, 88 Am. Dec. 271; *Stever* v. *New York C. & H. R. R. Co.* 7 App. Div. 392, 39 N. Y. Supp. 944.

But medical testimony designed to impress upon the minds of the jury results which might arise from a shock to the nervous system alone, without personal injury, or a fright in conjunction with such as might naturally arise from the alleged physical injuries, is not proper expert testimony in an action for the injuries. *Maynard* v. *Oregon R. Co.* 43 Or. 63, 72 Pac. 590.

[95]*Springfield Consol. R. Co.* v. *Welsch*, 155 Ill. 511, 40 N. E. 1034; *Holman* v. *Union Street R. Co.* 114 Mich. 208, 72 N. W. 202; *Louisville, N. A. & C. R. Co.* v. *Wright*, 115 Ind. 378, 7 Am. St. Rep. 432, 16 N. E. 145; *Indianapolis* v. *Gaston*, 58 Ind. 224; *Muldraugh's Hill, C. & C. Turnp. Co.* v. *Maupin*, 79 Ky. 101; *Buel* v. *New York C. R. Co.* 31 N. Y. 314, 88 Am. Dec. 271; *Palmer* v. *Warren Street R. Co.* 206 Pa. 574, 63 L. R. A. 507, 56 Atl. 49; *Haddock* v. *Salt Lake City*, 23 Utah, 521, 65 Pac. 491; *Johnson* v. *Central Vermont R. Co.* 56 Vt. 707.

And a question addressed to a medical witness in an action for a personal injury, as to the effect of the injury on the person's ability to do heavy work, based on what the witness had learned of his condition there that day, should be construed to call for an opinion based upon what he had learned at the examinations that he had testified he made, and is not objectionable as calling for an opinion based upon what he might have heard of his condition. *Johnson* v. *Central Vermont R. Co.* 56 Vt. 707.

But the opinion of a physician as to whether an injury to a person's hand would impair his usefulness for any skilled occupation, or occupation requiring its quick and ready use, is incompetent as involving no question of science or skill. *Kline* v. *Kansas City, St. J. & C. B. R. Co.* 50 Iowa, 656.

[96]*Griswold* v. *New York C. & H. R. R. Co.* 115 N. Y. 61, 12 Am. St. Rep. 775, 21 N. E. 726, Affirming 44 Hun, 236; *Filer* v. *New York C. R. Co.* 49 N. Y. 42, 10 Am. Rep. 327; *Pfau* v. *Alteria*, 23 Misc. 693, 52 N. Y. Supp. 88; *Rhines* v. *Royalton*, 40 N. Y. S. R. 662, 15 N. Y. Supp. 944; *Matteson* v. *New York C. R. Co.* 35 N. Y. 487, 91 Am. Dec. 67; *Wilt* v. *Vickers*, 8 Watts, 227; *Peterson* v. *Chicago, M. & St. P. R. Co.* 38 Minn. 511, 39 N. W. 485; *Skelton* v. *St. Paul City R. Co.* 88 Minn. 192, 92 N. W. 960; *Jackson* v. *Boone*, 93 Ga. 662, 20 S. E. 46; *Erickson* v. *Barber Bros.* 83 Iowa, 367, 49 N. W. 838; *McGovern* v. *Hays*, 75 Vt. 104, 53 Atl. 326; *Block* v. *Milwaukee Street R. Co.* 89 Wis. 371, 27 L. R. A. 365, 46 Am. St. Rep. 849, 61 N. W. 1101.

And a physician who knew the age and condition of an injured person is

permanency of the effects of the injury,[97] and as to the liability that the injured person will be subject to other dangers resulting from the injury;[98] such opinions not being objectionable as speculative, since that which happens in the natural and ordinary course of events may be assumed to happen with reasonable certainty.[99]

Likewise the question whether a described accident was capable of producing certain physical results is a proper one for a medical expert;[1] and a physician may give his opinion as to the probability of

qualified to express an opinion as to what her failure to recover from her injuries for a stated period would indicate as to their character. *Erickson* v. *Barber Bros.* 83 Iowa, 367, 49 N. W. 838.

[97]*Louisville, N. A. & C. R. Co.* v. *Holsapple*, 12 Ind. App. 301, 38 N. E. 1107; *Noblesville & E. Gravel Road Co.* v. *Gause*, 76 Ind. 142, 40 Am. Rep. 224; *Louisville, N. A. & C. R. Co.* v. *Falvey*, 104 Ind. 409, 3 N. E. 389, 4 N. E. 908; *Peoria, D. & E. R. Co.* v. *Berry*, 17 Ill. App. 47; *Tatum* v. *Mohr*, 21 Ark. 349; *Rowell* v. *Lowell*, 11 Gray, 420; *Reynolds* v. *Niagara Falls*, 81 Hun, 353, 30 N. Y. Supp. 954; *Buel* v. *New York C. R. Co.* 31 N. Y. 314, 88 Am. Dec. 271; *Magee* v. *Troy*, 48 Hun, 383, 1 N. Y. Supp. 24; *Walden* v. *Jamestown*, 79 App. Div. 433, 80 N. Y. Supp. 65, Affirmed in 178 N. Y. 213, 70 N. E. 466; *Coyne* v. *Manhattan R. Co.* 42 N. Y. S. R. 617, 16 N. Y. Supp. 686; *Matteson* v. *New York C. R. Co.* 35 N. Y. 487, 91 Am. Dec. 67; *Effinger* v. *Brooklyn Heights R. Co.* 13 Misc. 389, 34 N. Y. Supp. 239; *Maher* v. *New York C. & H. R. R. Co.* 20 App. Div. 161, 46 N. Y. Supp. 847; *McDonald* v. *New York, C. & St. L. R. Co.* 13 Misc. 651, 34 N. Y. Supp. 921; *New York, C. & St. L. R. Co.* v. *Ellis*, 13 Ohio C. C. 704, 6 Ohio C. D. 304; *Gulf, C. & S. F. R. Co.* v. *Harriett*, 80 Tex. 73, 15 S. W. 556; *Galveston, H. & S. A. R. Co.* v. *Baumgarten*, 31 Tex. Civ. App. 253, 72 S. W. 78; *Jones* v. *White*, 11 Humph. 268; *Budd* v. *Salt Lake City R. Co.* 23 Utah, 515, 65 Pac. 486; *Curran* v. *A. H. Stange Co.* 98 Wis. 598, 74 N. W. 377; *Reed* v. *Pennsylvania R. Co.* 56 Fed. 184; *Cunningham* v. *New York C. & H. R. R. Co.* 49 Fed. 439.

And the opinion of a physician that a person was permanently disabled is not rendered incompetent by the fact that he did not state what could have caused the condition described. *Illinois Steel Co.* v. *Delac*, 103 Ill. App. 98, Affirmed in 201 Ill. 150, 66 N. E. 245.

And a hypothetical question asked a medical expert in an action for personal injuries, in answer to which he expressed the opinion that the injuries would be permanent, is not subject to objection that the question omitted any mention of an improvement in some of the functions of the injured arm, to which the physician had testified, where he had also testified that there had been very little improvement in the gross use of the arm. *Cass* v. *Third Ave. R. Co.* 20 App. Div. 591, 47 N. Y. Supp. 356.

[98]*Montgomery* v. *Scott*, 34 Wis. 338; *Kelly* v. *Erie Teleg. & Teleph. Co.* 34 Minn. 321, 25 N. W. 706.

Whether a woman who had suffered a personal injury would ever be able to bear children is a question of medical science upon which the opinion of a medical expert is competent. *King* v. *Second Ave. R. Co.* 75 Hun, 17, 26 N. Y. Supp. 973.

[99]*Loudoun* v. *Eighth Ave. R. Co.* 16 App. Div. 152, 44 N. Y. Supp. 742; *Stever* v. *New York C. & H. R. R. Co.* 7 App. Div. 392, 39 N. Y. Supp. 944; *McClain* v. *Brooklyn City R. Co.* 116 N. Y. 459, 22 N. E. 1062; *Griswold* v. *New York C. & H. R. R. Co.* 44 Hun, 236, 115 N. Y. 61, 12 Am. St. Rep. 775, 21 N. E. 726; *Reynolds* v. *Niagara Falls*, 81 Hun, 353, 30 N. Y. Supp. 954; *Peterson* v. *Chicago, M. & St. P. R. Co.* 38 Minn. 511, 39 N. W. 485. And see *supra*, § 547.

An opinion by a medical expert that injuries will prove, with a fair degree of certainty, to be permanent, is not incompetent for want of certainty. *Kelly* v. *United Traction Co.* 88 App. Div. 283, 85 N. Y. Supp. 9.

[1]*Quinn* v. *O'Keeffe*, 9 App. Div. 68, 41 N. Y. Supp. 116; *Benjamin* v. *Holyoke Street R. Co.* 160 Mass. 3, 39 Am. St. Rep. 446, 35 N. E. 95.

the recurrence of a condition resulting from an injury,[2] and as to the probable necessity for future medical attendance.[3] And the opinion of a physician may be given as to what will be the result of a disease in the natural and ordinary course.[4] But it would seem that opinions as to the possible future development of diseases at present nonexistent, as distinguished from the effects of a present condition, are incompetent.[5] And an opinion as to the possible or probable results of an injury is speculative and incompetent.[6]

553. Character and effect of, and inferences from, wounds.—The opinions of physicians and surgeons as to the location, character, and probable consequences of wounds are competent evidence in a prosecution for homicide, or assault with intent to kill.[7] And this is the rule whether based upon observation, or upon a description of the wounds by other witnesses.[8] And a surgeon is competent to express an opinion as to whether or not a wound is a mortal one,[9] and as

And so is the question as to the progressive character of such results. *Magee* v. *Troy*, 48 Hun, 383, 1 N. Y. Supp. 24; *Saltzman* v. *Brooklyn City R. Co.* 73 Hun, 567, 26 N. Y. Supp. 311; *New York, C. & St. L. R. Co.* v. *Ellis*, 13 Ohio C. C. 704, 6 Ohio C. D. 304.

And a physician shown to be competent to testify as an expert may give his opinion as to whether a stillborn child would have been born alive if medical assistance had been received in time. *Western U. Teleg. Co.* v. *Cooper*, 71 Tex. 507, 1 L. R. A. 728, 10 Am. St. Rep. 772, 9 S. W. 598.

[2]*Filer* v. *New York C. R. Co.* 49 N. Y. 42, 10 Am. Rep. 327; *Penny* v. *Rochester R. Co.* 7 App. Div. 595, 40 N. Y. Supp. 172.

[3]*Martin* v. *Southern P. Co.* 130 Cal. 285, 62 Pac. 515; *Kendall* v. *Albia*, 73 Iowa, 241, 34 N. W. 833.

In Wisconsin, however, the contrary rule is positively stated. *Crouse* v. *Chicago & N. W. R. Co.* 104 Wis. 473, 80 N. W. 752; *Selleck* v. *Janesville*, 104 Wis. 570, 47 L. R. A. 691, 76 Am. St. Rep. 892, 80 N. W. 944.

[4]*Alberti* v. *New York, L. E. & W. R. Co.* 118 N. Y. 77, 6 L. R. A. 765, 23 N. E. 35.

[5]*Clegg* v. *Metropolitan Street R. Co.* 1 App. Div. 207, 37 N. Y. Supp. 130.

[6]*Gregory* v. *New York, L. E. & W. R. Co.* 55 Hun, 303, 8 N. Y. Supp. 525; *Huba* v. *Schenectady R. Co.* 85 App. Div. 199, 83 N. Y. Supp. 157; *Bellemare* v. *Third Ave. R. Co.* 46 App. Div. 557, 61 N. Y. Supp. 981; *Johnson* v. *Manhattan R. Co.* 52 Hun, 111, 4 N. Y. Supp. 848.

But permitting a medical witness to testify in a bastardy case involving an issue as to premature birth, that, in case the child in question had been a seven months' child and had been treated in the same manner as the evidence tended to show this one was treated at its birth, the chances of its survival would have been greatly against it, is not reversible error. *People ex rel. Sullivan* v. *Johnson*, 70 Ill. App. 634.

[7]*People* v. *Kerrains*, 1 Thomp. & C. 333; *People* v. *Willson*, 109 N. Y. 345, 16 N. E. 540; *Von Pollnitz* v. *State*, 92 Ga. 16, 44 Am. St. Rep. 72, 18 S. E. 301; *Batten* v. *State*, 80 Ind. 394; *State* v. *Morphy*, 33 Iowa, 270, 11 Am. Rep. 122; *State* v. *Cross*, 68 Iowa, 180, 26 N. W. 62; *State* v. *Porter*, 34 Iowa, 133; *Page* v. *State*, 61 Ala. 16; *State* v. *Wilcox*, 132 N. C. 1120, 44 S. E. 625; *Robinson* v. *State* (Tex. Crim. App.) 63 S. W. 869.

And a medical expert is competent to testify as to the general or probable consequences of a wound caused by the bite of a person, not confining the opinion to the danger of the particular wound in question. *Rhinehart* v. *Whitehead*, 64 Wis. 42, 24 N. W. 401.

[8]*Von Pollnitz* v. *State*, 92 Ga. 16, 44 Am. St. Rep. 72, 18 S. E. 301; *Page* v. *State*, 61 Ala. 16.

[9]*Batten* v. *State*, 80 Ind. 394; *Sims* v. *State* (Ala.) 36 So. 138; *State* v. *Woodward*, 84 Iowa, 172, 50 N. W. 885; *Livingston* v. *Com.* 14 Gratt. 592.

to the nature of the instrument which would produce such a wound,[10] and as to whether a wound was inflicted before or after death;[11] and a physician or surgeon may give his opinion as to the probable cause of a wound,[12] and as to the amount of force necessary to cause it.[13] The cause of the particular wound in question, however, is a question for the jury, and not one upon which an expert may express an opinion.[14] And so is the question whether a wound was accidentally or purposely inflicted.[15] And opinion evidence in a prosecution for homicide, as to the manner in which the killing was done, is mere speculation with reference to a matter about which the jury is as competent to judge as the witnesses, and is not proper expert testimony.[16] Nor is the position of the parties to a combat at the time

[10]*State* v. *Seymour*, 94 Iowa, 699, 63 N. W. 661; *State* v. *Morphy*, 33 Iowa, 270, 11 Am. Rep. 122; *State* v. *Knight*, 43 Me. 11; *State* v. *Pike*, 65 Me. 111; *Williams* v. *State*, 64 Md. 384, 1 Atl. 887; *State* v. *Brcaux*, 104 La. 540, 29 So. 222; *Territory* v. *Egan*, 3 Dak. 119, 13 N. W. 568; *Rash* v. *State*, 61 Ala. 89; *Littleton* v. *State*, 128 Ala. 31, 29 So. 399; *People* v. *Wong. Chuey*, 117 Cal. 624, 49 Pac. 833; *State* v. *Wilcox*, 132 N. C. 1120, 44 S. E. 625; *Sebastian* v. *State*, 41 Tex. Crim. Rep. 248, 53 S. W. 875; *Banks* v. *State*, 13 Tex. App. 182; *Bowers* v. *State* (Wis.) 99 N. W. 447. And see *Caleb* v. *State*, 39 Miss. 721.

But where death is produced by the skull bone being pressed in upon the brain, the question as to what kind of an instrument was used in causing the injury, and as to whether it was blunt or sharp, is one which can be as well decided by the jury as by an expert, and an opinion by an expert on that subject is incompetent. *Wilson* v. *People*, 4 Park. Crim. Rep. 619.

[11]*People* v. *Hare*, 57 Mich. 505, 24 N. W. 843.

And a physician who performed an operation upon an injured person, who afterwards died, is competent to testify that he found perforations in the bowels of the wounded man made by a bullet in its passage through his stomach, and that death was the result of the wound, and not of the operation. *Hunter* v. *State*, 30 Tex. App. 314, 17 S. W. 414.

[12]*Robinson* v. *Marino*, 3 Wash. 434, 28 Am. St. Rep. 50, 28 Pac. 752; *State* v. *Morphy*, 33 Iowa, 270, 11 Am. Rep. 122; *State* v. *Brcaux*, 104 La. 540, 29 So. 222; *People* v. *Hare*, 57 Mich. 505, 24 N. W. 843; *Gardiner* v. *People*, 6 Park. Crim. Rep. 143.

And the fact that a body was found in a sink or bin, with several wounds on the head, one of which involved a fracture of the skull; and that a crowbar, found in the building, fitted the depression in the skull caused by the fracture,—is sufficient to lay the foundation for the admissibility of the evidence of experts as to how and by what means the injuries were inflicted. *Davis* v. *State*, 38 Md. 15.

[13]*People* v. *Fish*, 125 N. Y. 136, 26 N. E. 319.

But where the question is whether a wound and fracture found on the head of a person, and described by the examining physician, was occasioned by accidentally falling, the fact that some other part of the skull might or might not have been fractured by accident tends in no way to enlighten the jury in a prosecution for the murder; and evidence of physicians as to such fracture is immaterial. *Davis* v. *State*, 38 Md. 15.

[14]*People* v. *Hare*, 57 Mich. 505, 24 N. W. 843; *State* v. *Rainsbarger*, 74 Iowa, 196, 37 N. W. 153.

A medical expert may give his opinion based upon the examination of a wound, as to whether or not a certain club could have been the instrument used; but he cannot be asked as to whether it was the identical club which produced it. *State* v. *Seymour*, 94 Iowa, 699, 63 N. W. 661.

[15]*Treat* v. *Merchants' Life Asso.* 198 Ill. 431, 64 N. E. 992. *Contra*, *State* v. *Knight*, 43 Me. 11.

[16]*Steagald* v. *State*, 24 Tex. App. 207, 5 S. W. 853; *Hunt* v. *State*, 9 Tex. App. 166.

a blow was struck, or a wound made, a subject for expert opinion;[17] and an opinion as to the relative positions of a person shot and the person doing the shooting, at the time the shot was fired, based upon the location and nature of the wound, is incompetent.[18]

A duly qualified medical expert, however, who examined the body of a deceased person shortly after the infliction of a wound causing his death, may give an opinion as to whether it was produced by a near shot, or one fired from a distance.[19] And a physician and surgeon of experience who had seen many gunshot powder marks and powder burns, and knew of his own knowledge the distance between the discharged weapons and the bodies fired upon, is sufficiently qualified to give an opinion as to the distance at which a certain pistol would produce powder marks on the skin;[20] though the rule would be different if the witness did not appear to be thus properly qualified as an expert on powder marks.[21] And a physician making a post-mortem examination of a person killed by a blow upon his head is competent to give an opinion as to the direction from which the blow was delivered.[22] And a medical expert may give his opinion as to

[17]*Perkins* v. *State*, 5 Ohio C. C. 597, 3 Ohio C. D. 292; *Brown* v. *State*, 55 Ark. 593, 18 S. W. 1051; *Kennedy* v. *People*, 39 N. Y. 245; *Thompson* v. *State*, 30 Tex. App. 325, 17 S. W. 448; *People* v. *Farley*, 124 Cal. 594, 57 Pac. 571.

From the form, nature, extent, depth, length, width, and direction of a wound being given, and its precise location, with a general statement of the amount of force requisite, and the probable shape of the instrument with which it was inflicted, the jury can judge, as well as the expert, as to the probable position of the person when the blow was given. *Kennedy* v. *People*, 39 N. Y. 245.

[18]*People* v. *Hill*, 116 Cal. 562, 48 Pac. 711; *People* v. *Smith*, 93 Cal. 445, 29 Pac. 64; *People* v. *Milner*, 122 Cal. 171, 54 Pac. 833; *Cooper* v. *State*, 23 Tex. 331; *Williams* v. *State*, 30 Tex. App. 429, 17 S. W. 1071. *Contra*, *State* v. *Merriman*, 34 S. C. 16, 12 S. E. 619.

But though the opinion of a physician as to the relative positions of two persons, one of whom shot the other, is incompetent in a prosecution for the homicide, its admission is harmless, where there is no question as to the killing by the shooting of a pistol. *People* v. *Hill*, 116 Cal. 562, 48 Pac. 711; *People* v. *Lemperle*, 94 Cal. 46, 29 Pac. 709.

[19]*State* v. *Asbell*, 57 Kan. 398, 46 Pac. 770.

[20]*People* v. *Hawes*, 98 Cal. 648, 33 Pac. 791.

And where a physician is called as an expert, in a prosecution for murder by shooting, to show the effect of powder marks from a pistol at short range, his experiments and the cloth used are competent evidence. *Sullivan* v. *Com.* 93 Pa. 284.

[21]*People* v. *Lemperle*, 94 Cal. 45, 29 Pac. 709.

And the opinion of a physician in a prosecution for homicide, as to the distance at which the pistol used would produce powder marks on the skin, is immaterial, where it appears that a shot passed through a coat, vest, shirt, and undershirt. *People* v. *Hawes*, 98 Cal. 648, 33 Pac. 791.

[22]*Hopt* v. *Utah*, 120 U. S. 430, 30 L. ed. 708, 7 Sup. Ct. Rep. 614; *Territory* v. *Egan*, 3 Dak. 119, 13 N. W. 568; *Perry* v. *State*, 110 Ga. 234, 36 S. E. 781; *Gardiner* v. *People*, 6 Park. Crim. Rep. 143.

In *McKee* v. *State*, 82 Ala. 32, 2 So. 451, however, it was held that where a wound is susceptible of description, it is properly left to the jury to determine from what direction the blow came; and the opinion of the witness as to the direction, based upon the appearance of the wound, is incompetent.

the range, after entering the body, of a shot which caused death, taking into consideration the bone, muscle, and other substances through which it had to pass.[23]

554. Proof as to blood stains.—Stains of blood found upon the person or clothing of a deceased person are recognized as an ordinary indication of homicide, and are competent evidence of its commission even in the absence of proof that the stains were in fact blood stains;[24] constituting primary and legitimate, and not secondary, evidence of homicide;[25] its weight being a question for the jury.[26] And the witness need not be a chemist or physician or expert to enable him to testify that certain spots or stains were in fact blood spots or blood stains;[27] and inferences as to the relative positions of two combatants, based upon the appearances of blood stains, are within the domain of common experience, and not a matter of science.[28] In a case resting upon circumstantial evidence, however, proof of apparent blood spots, without chemical analysis, does not warrant the legal presumption that the substance was blood, because of the similarity of stains made by other substances;[29] and where an effort is made to distinguish between human blood and that of some animal, the question is one of science requiring the application of great skill and knowledge, upon which the testimony must be that of an expert.[30] An investi-

[23]*State* v. *Keene*, 100 N. C. 509, 6 S. E. 91; *Com.* v. *Lenox*, 3 Brewst. (Pa.) 249; *Rash* v. *State*, 61 Ala. 89. *Contra*, *Hardin* v. *State*, 40 Tex. Crim. Rep. 208, 49 S. W. 607.

And a person not a physician or surgeon or expert cannot give an opinion upon such a question, though he had been in the war, and had seen the range of balls in a large number of gunshot wounds. *Rash* v. *State*, 61 Ala. 89.

[24]*People* v. *Gonzalez*, 35 N. Y. 49; *People* v. *Bell*, 49 Cal. 485; *Dillard* v. *State*, 58 Miss. 368; *Com.* v. *Crossmire*, 156 Pa. 304, 27 Atl. 40.

[25]*People* v. *Gonzalez*, 35 N. Y. 49.

[26]*Com.* v. *Crossmire*, 156 Pa. 304, 27 Atl. 40.

[27]*Greenfield* v. *People*, 85 N. Y. 75; 39 Am. Rep. 636; *People* v. *Deacons*, 109 N. Y. 374, 16 N. E. 676; *People* v. *Gonzalez*, 35 N. Y. 49.

The testimony of a chemist who had analyzed blood, and that of an observer who had simply recognized it, belong to the same legal grade of evidence, though the one might be entitled to greater weight than the other: the exclusion of either would be illegal. *People* v. *Gonzalez*, 35 N. Y. 49.

[28]*Dillard* v. *State*, 58 Miss. 368; *Com.* v. *Sturtivant*, 117 Mass. 122, 19 Am. Rep. 401.

And a witness familiar with blood, and who had examined blood stains upon a coat, with a lens, when they were fresh, may testify that the appearance indicated that the blood came from below upwards, although he was not an expert, and had never experimented with blood or other fluids in this respect. *Com.* v. *Sturtivant*, 117 Mass. 122, 19 Am. Rep. 401.

But a medical witness is competent to testify as to whether or not a man standing at the hip of a recumbent person, and striking blows on the person's head and forehead with an axe, would not necessarily be spattered with blood. *Bram* v. *United States*, 168 U. S. 532, 42 L. ed. 568, 18 Sup. Ct. Rep. 183.

[29]*Dillard* v. *State*, 58 Miss. 368.

[30]*People* v. *Deacons*, 109 N. Y. 375, 16 N. E. 676; *State* v. *Knight*, 43 Me. 11.

And the opinion of a physician in a prosecution for murder, on the probable length of time necessary for a clot of blood to acquire the consistency in which it was found, and the length of time it would take for decomposition to

gation or examination by experts of the clothing or person of one accused of murder, for the purpose of the discovery of the presence or absence of blood stains, is not incompetent and improper as a violation of the constitutional provision that no person in any criminal case shall be compelled to be a witness against himself, where the examination was voluntarily submitted to.[31]

555. Proof as to poisoning.—A medical examination and chemical analysis are more important in cases of alleged poisoning than symptoms; and proof of symptoms of poisoning—especially when unsatisfactory and unreliable—will not warrant conviction for poisoning, in the absence of chemical analysis, and application to the stomach and its contents of approved tests for the discovery of poison.[32] And physicians may testify, in a prosecution for poisoning, to a chemical analysis made by them of the stomach of the deceased, and to the tests applied for detecting the existence of poison, though they are not professional chemists, and have no experience in the analysis of poison;[33] but a chemical analysis for the purpose of discovering poison would be of less weight if conducted by persons without practical experience, than if conducted by practical chemists whose conclusions were based upon experience, as well as upon study.[34] The question of the condition of the stomach of a person alleged to have been poisoned is likewise one involving skill and science, and a proper subject for expert testimony.[35] But specialists of experience are

set in, is competent; and it is within the proper discretion of the court to permit it to be given on redirect examination of a witness. *State* v. *Warren*, 41 Or. 348, 69 Pac. 679.

And a physician who had examined the body of a deceased person, and the surroundings at the place where it was found, may testify on an issue as to whether or not death was occasioned by suicide, as to the position in which the body must have lain for the blood to take the course from the wound it did. *Dinsmore* v. *State*, 61 Neb. 418, 85 N. W. 445.

[31]*State* v. *Baker*, 33 W. Va. 319, 10 S. E. 639. And see *State* v. *Knight*, 43 Me. 11.

[32]*Joe* v. *State*, 6 Fla. 591, 65 Am. Dec. 579. And see *People* v. *Benham*, 160 N. Y. 402, 55 N. E. 11.

[33]*State* v. *Hinkle*, 6 Iowa, 380; *State* v. *Cole*, 63 Iowa, 698, 17 N. W. 183.

And physicians, called as witnesses in a prosecution for murder by poison, may, after describing discoveries made by them in an autopsy, be permitted to testify that they did not see any other evidence of disease than the conditions described by them, and that they did not discover any natural cause of death. *People* v. *Benham*, 160 N. Y. 402, 55 N. E. 11.

[34]*State* v. *Hinkle*, 6 Iowa, 380.

The weight which should be given to evidence of physicians who made an autopsy in an alleged case of murder by poison depends largely upon the care with which the various organs of the body were examined. *People* v. *Benham*, 160 N. Y. 402, 55 N. E. 11.

But to permit a consideration by the jury in a prosecution for poisoning, of a chemical analysis of the stomach of the person poisoned, it is not necessary that it should be kept continuously under lock and key, or continuously sealed up; it is sufficient if it appears that it was the identical stomach, and that no foreign substance, such as poison, could have reached it. *State* v. *Cook*, 17 Kan. 392.

[35]*State* v. *Cole*, 63 Iowa, 697, 17 N. W. 183.

alone competent to testify as to the effect of particular drugs on the human system;[36] though medical experts may properly testify as to the effect of poisons from information derived from the writings of standard authors on the subject.[37] And one who had made a chemical analysis of the stomach of a person alleged to have been poisoned may testify as an expert concerning the effect of strychnin upon the human stomach and upon the human system, where he is a chemist and toxicologist, though not a physician and surgeon.[38]

556. The question of sham or pretended injury or disease.—A physician or medical expert who had examined or treated a person claiming to be ill or injured is competent to give an opinion from the general appearance, actions, and looks of the patient, and from his examination and statements, as to whether or not his trouble or injury was imaginary, feigned, or real.[39] And an opinion of a medical expert that physical defects found upon examination of the person are such that they could not have been produced by simulation is competent, and clearly within the domain of expert testimony.[40] A phy-

[36]*State* v. *Perry*, 41 W. Va. 641, 24 S. E. 634; *Polk* v. *State*, 36 Ark. 117; *Soquet* v. *State*, 72 Wis. 659, 40 N. W. 391. *Contra*, *Siebert* v. *People*, 143 Ill. 571, 32 N. E. 431.

But a practising physician who is a graduate of a college of medicine and surgery is competent to express his opinion as to whether a given case is one of poisoning or not; though it did not appear that he had ever treated a person who had been poisoned, or had ever seen one treated, the weight of his testimony being a question for the jury. *People* v. *Thacker*, 108 Mich. 652, 66 N. W. 562.

[37]*Carter* v. *State*, 2 Ind. 617; *People* v. *Benham*, 160 N. Y. 402, 55 N. E. 11. And see *Hoard* v. *Peck*, 56 Barb. 202; *Mutual L. Ins. Co.* v. *Tillman*, 84 Tex. 31, 19 S. W. 294.

And a generally competent practitioner of medicine who has made a special study of toxicology is competent to testify as an expert with reference to poisoning from a cyanid though he never attended a patient suffering in that way. *Germania L. Ins. Co.* v. *Rose Lewin*, 24 Colo. 43, 65 Am. St. Rep. 215, 51 Pac. 488.

And the opinion of a medical practitioner of long experience in the practice of his profession, that a death was caused by arsenical poisoning, is not rendered incompetent by an admission on his part that his opinion was based in part upon the fact that there was arsenic in the house of the deceased person; the admission going to his credit, and not to his competency. *Mitchell* v. *State*, 58 Ala. 417.

[38]*State* v. *Cook*, 17 Kan. 392.

[39]*Brown* v. *Third Ave. R. Co.* 19 Misc. 504, 43 N. Y. Supp. 1094; *Chicago, R. I. & T. R. Co.* v. *Boyles*, 11 Tex. Civ. App. 522, 33 S. W. 247; *McGrew* v. *St. Louis, S. F. & T. R. Co.* (Tex. Civ. App.) 74 S. W. 816; *Quaife* v. *Chicago & N. W. R. Co.* 48 Wis. 513, 33 Am. Rep. 821, 4 N. W. 658.

And an opinion by a physician based upon actions and looks of a patient, and what she said, is not incompetent, where the witness had sworn that he could find nothing in her physical condition that indicated the existence of pain, upon the theory that his opinion could only be an opinion on the veracity of his patient. *Quaife* v. *Chicago & N. W. R. Co.* 48 Wis. 513, 33 Am. Rep. 821, 4 N. W. 658.

And a question asked a physician in an action for a personal injury, if it was not possible for a person to simulate complaints of severe pain so as to deceive a physician, does not constitute an attack on the plaintiff's character. *Chicago, R. I. & T. R. Co.* v. *Boyles*, 11 Tex. Civ. App. 522, 33 S. W. 247.

[40]*Harrold* v. *Winona & St. P. R. Co.* 47 Minn. 17, 49 N. W. 389; *Missouri, K. & T. R. Co.* v. *Wright*, 19 Tex. Civ.

sician is not competent, however, to give his opinion that a plaintiff in an action for a personal injury was shamming before the jury, a physician being no better qualified on that subject than the jurors.[41] And a medical expert cannot give his opinion on the question whether or not a person claiming injury or illness is a malingerer.[42] And an opinion that a person was simulating pain or suffering is incompetent, when based upon personal acquaintance with such person, or some other reason not within the range of expert testimony.[43] Nor can such an opinion be based upon mental process; to be admissible it must be founded on physical condition either as seen or described.[44]

557. The question of weight.—As in case of expert evidence generally, the jury is the judge of the weight to be attached to the opinions of medical experts.[45] Jurors are not controlled by medical opinions; the medical expert cannot be put in the place of the jury, and allowed to decide the case.[46] Such opinions are to be considered in connection with the other evidence, and given just weight; but the jury must determine for itself, from the whole evidence, the question at issue;[47] and their value must be made to depend upon the agreement or non-agreement of the facts assumed as their basis with the actual facts of the particular case,[48] and upon the opportunities of the witness to ac-

App. 47, 47 S. W. 56; *Chicago Union Traction Co.* v. *Fortier*, 205 Ill. 305, 68 N. E. 948.

[41]*Cole* v. *Lake Shore & M. S. R. Co.* 95 Mich. 77, 54 N. W. 638.

[42]*Brown* v. *Third Ave. R. Co.* 19 Misc. 504, 43 N. Y. Supp. 1094.

[43]*Chicago, R. I. & T. R. Co.* v. *Boyles*, 11 Tex. Civ. App. 522, 33 S. W. 247.

And testimony of a physician that he would not have treated a patient if he had believed that he was simulating is incompetent and improper, though not such as would ordinarily require a reversal. *Ibid.*

[44]*Chicago Union Traction Co.* v. *Fortier*, 205 Ill. 305, 68 N. E. 948.

[45]*Tatum* v. *Mohr*, 21 Ark. 349; *Washington* v. *Cole*, 6 Ala. 212; *People* v. *Phelan*, 123 Cal. 551, 56 Pac. 424; *Miller* v. *Mutual Ben. L. Ins. Co.* 31 Iowa, 216, 7 Am. Rep. 122; *Siebert* v. *People*, 143 Ill. 571, 32 N. E. 431; *Roberts* v. *Johnson*, 58 N. Y. 613; *People* v. *Benham*, 160 N. Y. 402, 55 N. E. 11; *State* v. *Wilcox*, 132 N. C. 1120, 44 S. E. 625.

And an instruction which will lead the jury to the conclusion that a medical opinion must prevail in the absence of contradictory testimony, without regard to testimony introduced for the purpose of impeachment, is erroneous. *Miller* v. *Mutual Ben. L. Ins. Co.* 31 Iowa, 216, 7 Am. Rep. 122.

[46]*Delafield* v. *Parish*, 25 N. Y. 115; *Sanders* v. *State*, 94 Ind. 147; *Goodwin* v. *State*, 96 Ind. 550; *Re Blakely*, 48 Wis. 294, 4 N. W. 337; *Travelers' Ins. Co.* v. *Thornton*, 119 Ga. 455, 46 S. E. 678; *State* v. *Owen*, 72 N. C. 605.

[47]*Goodwin* v. *State*, 96 Ind. 550; *State* v. *Johnson*, 66 S. C. 23, 44 S. E. 58.

The question of the effect upon the weight of a medical opinion as to the existence of a fracture, of the fact that it was formed from an examination made by the X-ray process of determining whether a fracture had existed, is one for the jury. *Miller* v. *Dumon*, 24 Wash. 648, 64 Pac. 804.

[48]*Woodward* v. *Iowa L. Ins. Co.* 104 Tenn. 49, 56 S. W. 1020; *Clark* v. *State*, 12 Ohio, 483, 40 Am. Dec. 481.

quire skill and knowledge and the use he made of these opportunities.[49]

When, however, the case concerns a highly specialized branch of the medical art, with respect to which a layman could have no knowledge, the court must be dependent upon expert testimony; and in such cases, in the absence of such evidence, it is improper to submit the case to the jury.[50] And evidence of medical and scientific persons, physicians, surgeons, and chemists, by whom a body had been inspected and examined either at the time of its discovery or shortly after, and their opinions with reference to it, are competent and of great value in a prosecution for homicide, in establishing the *corpus delicti*.[51] But such opinions can only be regarded as scientific, so as to be entitled to additional weight so far as they relate to physical man, and his diseases, and their means of cure.[52] And where a medical opinion is given by a physician, it becomes a proper subject for cross-examination for the purpose of ascertaining his qualifications and fairness and impartiality, and the consequent weight to which his opinion is entitled;[53] and for this purpose he may be asked as to his experience and reading in similar cases,[54] and as to his treatment

[49]*State* v. *Wilcox*, 132 N. C. 1120, 44 S. E. 625; *Roberts* v. *Johnson*, 58 N. Y. 613; *People* v. *Benham*, 160 N. Y. 402, 55 N. E. 11; *Washington* v. *Cole*, 6 Ala. 212.

It is a self-evident fact that a physician who has seen, examined, and treated a physical injury, if he is skilful, is better qualified by reason of his superior information to judge of the character and extent of the injury, than one who forms his opinion from a mere verbal description of the injury; and an admission to that effect secured from a physician on cross-examination cannot be said to be prejudicial. *Robinson* v. *St. Louis & Suburban R. Co.* 103 Mo. App. 110, 77 S. W. 493.

[50]*Ewing* v. *Goode*, 78 Fed. 442. And see *Clark* v. *State*, 12 Ohio, 483, 40 Am. Dec. 481.

And while the opinion of a physician as to the length of time a disease has existed, predicated upon the present symptoms, is not equal in value to positive proof of the fact of its existence, such an opinion based upon personal examination should not be discredited by the court, by a charge that the testimony of physicians is matter of opinion only. *Bennett* v. *Fail*, 26 Ala. 605.

[51]*Pitts* v. *State*, 43 Miss. 473.

[52]*Delafield* v. *Parish*, 25 N. Y. 115; *Carpenter* v. *Calvert*, 83 Ill. 62; *Re Blakely*, 48 Wis. 294, 4 N. W. 337.

And a medical opinion in a case, bearing upon the degree of cerebral disease indicated by apoplexy, paralysis, loss of speech, convulsions, and other physical symptoms, is to be regarded as the opinion of an expert; but so far as it rests upon evidence going to show a want of intellect, directly, and not merely as the result of disease, it derives little, if any, additional force from the professional education of the witness. *Delafield* v. *Parish*, 25 N. Y. 115; *Re Blakely*, 48 Wis. 294, 4 N. W. 337.

[53]*Barr* v. *Kansas City*, 121 Mo. 22, 25 S. W. 562; *Birmingham R. & Electric Co.* v. *Ellard*, 135 Ala. 433, 33 So. 276.

[54]*Rowell* v. *Lowell*, 11 Gray, 420; *State* v. *Chiles*, 44 S. C. 338, 22 S. E. 339; *McGovern* v. *Hays*, 75 Vt. 104, 53 Atl. 326.

And a question addressed to a medical expert on cross-examination, where he had testified in chief as to hysteria and its causes, and stated that the plaintiff had the appearance of an hysterical person, as to whether a patient is any more responsible for an hysterical condition than any other condition, is proper, it being competent to test his

of the patient and the nature of the case in hand.[55] Nor is it improper on cross-examination to ask physicians who attended an injured person, by whom they were sent and paid.[56] And it may be shown that a medical expert charged or expected to receive greater compensation than the fees allowed by law, and that he is in the employ of one of the litigants regularly or frequently as an expert witness.[57] Where physicians testify as to matters within their personal knowledge, their testimony is to be weighed like that of other witnesses;[58] and they may be impeached in the same way.[59]

558. Expert evidence as to other particular subjects.—For further instances and examples of medical expert testimony see *ante,* chapter XIX., MALPRACTICE, §§ 516, 517, 518; chapter XXI., ABORTION, § 525; chapter XXIV., IDENTIFICATION, § 539; chapter XXV., SURVIVORSHIP, § 540; chapter XXVI., RAPE, §§ 543, 544; and see *infra,* this chapter. As to expert evidence of insanity, see volume I., chapter XX., subd. III.

II. MEDICAL BOOKS.

559. The general rules as to admissibility.—The general rule is that text-books on medicine and surgery, though standard authority on the subject, cannot be read to a jury as independent evidence of the opinions or theories therein expressed or advocated,[60] except for

knowledge as to hysteria. *Birmingham R. & Electric Co.* v. *Ellard,* 135 Ala. 433, 33 So. 276.

[55]*Batten* v. *State,* 80 Ind. 394.

[56]*Chicago City R. Co.* v. *Carroll,* 206 Ill. 318, 68 N. E. 1087.

[57]*Chicago City R. Co.* v. *Handy,* 208 Ill. 81, 69 N. E. 917.

And where a physician, called to give evidence as to injuries suffered by a person, testified that he refused to come to court until he had been paid, and the plaintiff's attorney sent him a check, he may be required to state how much he was paid; and refusal to require this cannot be deemed to have been harmless, where the verdict was not inconsiderable, and the witnesses had testified with much emphasis as to permanent results of the injury. *Brown* v. *Interurban Street R. Co.* 87 N. Y. Supp. 461.

[58]*Woodward* v. *Iowa L. Ins. Co.* 104 Tenn. 49, 56 S. W. 1020.

[59]*Missouri, K. & T. R. Co.* v. *Criswell* (Tex. Civ. App.) 78 S. W. 388.

[60]*Van Skike* v. *Potter,* 53 Neb. 28, 73 N. W. 295; *People* v. *Goldenson,* 76 Cal. 328, 19 Pac. 161; *Gallagher* v. *Market Street R. Co.* 67 Cal. 13, 56 Am. Rep. 713, 6 Pac. 869; *Johnston* v. *Richmond & D. R. Co.* 95 Ga. 685, 22 S. E. 694; *Quattlebaum* v. *State,* 119 Ga. 433, 46 S. E. 677; *Gale* v. *Rector,* 5 Ill. App. 481; *Carter* v. *State,* 2 Ind. 617; *State* v. *Peterson,* 110 Iowa, 647, 82 N. W. 329; *Stewart* v. *Equitable Mut. Life Asso.* 110 Iowa, 528, 81 N. W. 782; *State* v. *Baldwin,* 36 Kan. 1, 12 Pac. 318; *Davis* v. *State,* 38 Md. 15; *Ware* v. *Ware,* 8 Me. 42; *Com.* v. *Marzynski,* 149 Mass. 68, 21 N. E. 228; *Com.* v. *Wilson,* 1 Gray, 338; *People* v. *Millard,* 53 Mich. 63, 18 N. W. 562; *People* v. *Hall,* 48 Mich. 482, 42 Am. Rep. 477, 12 N. W. 665; *Fraser* v. *Jennison,* 42 Mich. 206, 3 N. W. 882; *Tucker* v. *Donald,* 60 Miss. 460, 45 Am. Rep. 416; *Re Mason,* 60 Hun, 46, 14 N. Y. Supp. 434; *Harris* v. *Panama R. Co.* 3 Bosw. 7; *Foggett* v. *Fischer,* 23 App. Div. 207, 48 N. Y. Supp. 741; *Huffman* v. *Click,* 77 N. C. 55; *Melvin* v. *Easley,* 46 N. C. (1 Jones, L.) 387, 62 Am. Dec. 171;

the purpose of discrediting a witness who bases his testimony upon them.[61] Nor can a witness be allowed to read from his own works to support his testimony.[62] And a question as to whether his views are sustained by authorities is incompetent, as indirectly calling for statements from medical books.[63] Nor can he testify as to statements made in medical books;[64] and the fact that an expert had read a book, and answered questions with relation to it, does not render the book itself admissible.[65] A mere objection that a medical work is immaterial, however, is insufficient to raise any question on appeal;[66] and the admission of such books is not reversible error, where both parties had the benefit of the evidence, and the question of admission was not raised in the trial court.[67]

560. The contrary rule.—The rule has been adopted by some of the cases that the opinion of an author as to the contents of his works is better evidence than the mere statement of an opinion by a witness testifying to his recollection of them from former reading, and that standard works are admissible as evidence of the author's opinion

Legg v. *Drake*, 1 Ohio St. 287; *State* v. *O'Brien*, 7 R. I. 336; *Boehringer* v. *A. B. Richards Medicine Co.* 9 Tex. Civ. App. 284, 29 S. W. 508; *Stilling* v. *Thorp*, 54 Wis. 528, 41 Am. Rep. 60, 11 N. W. 906; *Union P. R. Co.* v. *Yates*, 40 L. R. A. 553, 25 C. C. A. 103, 49 U. S. App. 241, 79 Fed. 584; *Reg.* v. *Taylor*, 13 Cox. C. C. 77; *Darby* v. *Ouseley*, 36 Eng. L. & Eq. 518, 1 Hurlst. & N. 12, 25 L. J. Exch. N. S. 227, 2 Jur. N. S. 497; *Collier* v. *Simpson*, 5 Car. & P. 73.

Medicine is not to be considered as an exact science, but rather as an inductive science based on data subject to change from time to time. *Gallagher* v. *Market Street R. Co.* 67 Cal. 13, 56 Am. Rep. 713, 6 Pac. 869.

[61]*People* v. *Goldenson*, 76 Cal. 328, 19 Pac. 161; *People* v. *Vanderhoof*, 71 Mich. 158, 39 N. W. 28; *Hall* v. *Murdock*, 114 Mich. 233, 72 N. W. 150.

[62]*Mix* v. *Staples*, 44 N. Y. S. R. 399, 17 N. Y. Supp. 775.

And a report of a single case which had occurred in the practice of a physician, proposed to be testified to by the physician in an action on a warranty of soundness of a slave, is objectionable under the rule that medical books cannot be read in evidence. *Parker* v. *Johnson*, 25 Ga. 576.

[63]*Link* v. *Sheldon*, 45 N. Y. S. R. 165, 18 N. Y. Supp. 815; *Pahl* v. *Troy City R. Co.* 81 App. Div. 308, 81 N. Y. Supp. 46; *People* v. *Goldenson*, 76 Cal. 328, 19 Pac. 161.

And counsel cannot be permitted to read to an expert what had been said by a physician of high authority on a question involved, in a medical journal, and then ask him whether he concurred in the views there given. *State* v. *Coleman*, 20 S. C. 441.

[64]*Re Mason*, 60 Hun, 46, 14 N. Y. Supp. 434; *Boyle* v. *State*, 57 Wis. 472, 46 Am. Rep. 41, 15 N. W. 827; *Davis* v. *State*, 38 Md. 15; *Baily* v. *Kreutzmann*, 141 Cal. 519, 75 Pac. 104.

And a statement in a medical book cannot be placed before the jury by reading therefrom to the witness, and then asking him whether there was a case reported similar to the one read. *Marshall* v. *Brown*, 50 Mich. 148, 15 N. W. 55.

And refusal to permit medical witnesses to answer questions as to whether certain medical works, naming them, were standard authorities, is not error, where no previous mention of them was made. *Fox* v. *Peninsular White Lead & Color Works*, 84 Mich. 676, 48 N. W. 203.

[65]*State* v. *O'Brien*, 7 R. I. 336.

[66]*State* v. *Sexton*, 10 S. D. 127, 72 N. W. 84.

[67]*Kreuziger* v. *Chicago & N. W. R. Co.* 73 Wis. 158, 40 N. W. 657.

upon questions of medical skill or practice.[68] Under this rule medical books may be read to the jury in connection with a proper explanation of the terms used,[69] and skilled physicians and surgeons are competent to testify as to who are standard authors, and as to what treatment they prescribe.[70] And a statutory provision that historical works, books of science or art, etc., when made by indifferent persons, are presumptive evidence of facts of general notoriety and interest, does not make inadmissible any such evidence which was before admissible.[71] But such books have not the weight of legal authorities, except so far as the views expressed in them on the subject in question have been recognized and sustained by judicial ruling.[72] The United States circuit court of appeals however, has refused to follow the state courts of Iowa in the adoption of the above rule, holding that a statute of that state, making books of science or art presumptive evidence of facts of general notoriety or interest, does not include medical works so as to make them evidence of the opinions or theories therein expressed.[73]

561. Opinions founded on books.—Though medical and scientific books are not deemed admissible in evidence, opinions of medical experts are not rendered inadmissible by the fact that they were in some degree founded on books as a part of their general knowledge.[74]

[68] *Bowman* v. *Woods*, 1 G. Greene, 441; *Merkle* v. *State*, 37 Ala. 139; *Bales* v. *State*, 63 Ala. 30; *Stoudenmeier* v. *Williamson*, 29 Ala. 558; *State* v. *West*, Houst. Crim. Rep. (Del.) 371.

Under this rule evidence of a medical expert as to whether delusion or transitory mania is a condition recognized by medical authorities, offered for the purpose of proving that the theory in question is taught by the authorities, is not admissible, since the works themselves would be the only competent evidence of what they teach; though it might be admissible on cross-examination to test the accuracy of his knowledge. *State* v. *Winter*, 72 Iowa, 627, 34 N. W. 475.

[69] *Merkle* v. *State*, 37 Ala. 139; *Bales* v. *State*, 63 Ala. 30; *Stoudenmeier* v. *Williamson*, 29 Ala. 558.

But a jury to whom passages from a scientific work had been read as evidence cannot be permitted to take the book with them into the jury room when they retire for deliberation, where the portions read were not marked. *State* v. *Gillick*, 10 Iowa, 98.

[70] *Brodhead* v. *Wiltse*, 35 Iowa, 429.

And whether there is a difference between medical or surgical authorities as to the mode of treatment or proper course to be pursued in a designated case may be shown by the evidence of competent physicians and surgeons. *Ibid.*

[71] *Ibid.*

[72] *State* v. *West*, Houst. Crim. Rep. (Del.) 371.

But the admission in evidence in an action for malpractice, of a medical book, objected to because an old edition, and because the practice had since changed, is not prejudicial error, where the evidence clearly shows what the modern practice is. *Peck* v. *Hutchinson*, 88 Iowa, 320, 55 N. W. 511.

[73] *Union P. R. Co.* v. *Yates*, 25 C. C. A. 103, 40 L. R. A. 553, 49 U. S. App. 241, 79 Fed. 584.

[74] *Melvin* v. *Easley*, 46 N. C. (1 Jones, L.) 387, 62 Am. Dec. 171; *Carter* v. *State*, 2 Ind. 617; *State* v. *Baldwin*, 36 Kan. 1, 12 Pac. 318; *Finnegan* v. *Fall River Gas Works Co.* 159 Mass. 311, 34 N. E. 523; *Wehner* v. *Lagerfelt*, 27 Tex. Civ. App. 520, 66 S. W. 221; *Collier* v. *Simpson*, 5 Car. & P. 74.

It is not improper for a medical witness to give the source of his opinion,

Medical witnesses are not confined to opinions derived from their own observation and experience,[75] and may be asked for their best opinions according to the best authority;[76] and they may refer to cases on record, without reading them, to support their opinions.[77] But the judgment or opinion, in order to be admissible, must be that of the expert himself, and not merely that of the author repeated by him.[78] On this question see also discussion as to qualifications of experts.[79]

562. Use of books in examining witnesses.—Counsel may use the statements in medical books or medical journals of physicians of high standing for the purpose of framing questions to be asked medical experts as to their own opinions.[80] And a medical witness may refresh his recollection by reference to standard authorities prepared by persons of knowledge and ability.[81] But the opinion which he gives must be his own, independent of that expressed in the work.[82] And books referred to by a medical expert cannot be used to support his testimony.[83] Nor can such books be admitted in evidence on cross-examination, where their introduction is not for the purpose of direct contradiction of something asserted by the witness, but sim-

and to state that all writers and authorities on the subject, so far as he knows, support his position. *State* v. *Baldwin*, 36 Kan. 1, 12 Pac. 318.

[75]*State* v. *Terrell*, 12 Rich. L. 321; *Marshall* v. *Brown*, 50 Mich. 148, 15 N. W. 55; *Taylor* v. *Grand Trunk R. Co.* 48 N. H. 304, 2 Am. Rep. 229; *State* v. *Wood*, 53 N. H. 484.

[76]*Pierson* v. *Hoag*, 47 Barb. 243.

[77]*Healy* v. *Visalia & T. R. Co.* 101 Cal. 585, 36 Pac. 125.

But an expert witness testifying as such that he agrees with the author of a work upon medical jurisprudence cannot be handed the book, and asked to read a certain paragraph pointed out therein. *Com.* v. *Sturtivant*, 117 Mass. 122, 19 Am. Rep. 401.

[78]*State* v. *Baldwin*, 36 Kan. 1, 12 Pac. 318; *Wehner* v. *Lagerfelt*, 27 Tex. Civ. App. 520, 66 S. W. 221.

In *Kath* v. *Wisconsin C. R. Co.* (Wis.) 99 N. W. 217, and *Soquet* v. *State*, 72 Wis. 659, 40 N. W. 391, it was held that an expert medical witness cannot state an opinion based upon what he learns entirely from medical works, unsupported by practical experience of his own; but that the rule goes no further.

[79]*Supra*, § 545.

[80]*State* v. *Coleman*, 20 S. C. 441; *Tompkins* v. *West*, 56 Conn. 478, 16 Atl. 237; *Connecticut Mut. L. Ins. Co.* v. *Ellis*, 89 Ill. 516. And see *Hess* v. *Lowrey*, 122 Ind. 233, 7 L. R. A. 90, 17 Am. St. Rep. 355, 23 N. E. 156.

It is not improper to allow counsel to incorporate quotations from medical works as part of his questions addressed to experts to test their technical knowledge. *Williams* v. *Nally*, 20 Ky. L. Rep. 244, 45 S. W. 874.

[81]*State* v. *Baldwin*, 36 Kan. 1, 12 Pac. 318; *Huffman* v. *Click*, 77 N. C. 55; *Union P. R. Co.* v. *Yates*, 40 L. R. A. 553, 25 C. C. A. 103, 49 U. S. App. 241, 79 Fed. 584.

And an engraving however made may be used by a medical witness to illustrate his meaning; but when offered as a part of a medical book, or as the work of some distinguished medical man, it should be excluded, since that would give it undue importance to the jury. *Ordway* v. *Haynes*, 50 N. H. 159.

[82]*State* v. *Baldwin*, 36 Kan. 1, 12 Pac. 318; *Huffman* v. *Click*, 77 N. C. 55.

[83]*Gallagher* v. *Market Street R. Co.* 67 Cal. 13, 56 Am. Rep. 713, 6 Pac. 869; *State* v. *Winter*, 72 Iowa, 627, 34 N. W. 475; *Davis* v. *State*, 38 Md. 15; *Fox* v. *Peninsular White Lead & Color Works*, 84 Mich. 676, 48 N. W. 203.

ply to prove a contrary theory.[84] And counsel cannot, on cross-examination, call the attention of expert witnesses, testifying to their own opinions, to certain medical works, and read therefrom to the jury to contradict them.[85]

Evidence as to what was said in a medical book, however, may be contradicted by producing the book;[86] and reference to books of approved authority is proper on cross-examination, in order to test the learning of a witness.[87] And medical men may be asked on cross-examination whether they have read particular medical books;[88] and whether they agree with the authors of such books;[89] and whether the books do not contain statements contrary to the views expressed by the witnesses.[90] But questions as to

[84]*Bloomington* v. *Shrock*, 110 Ill. 219, 51 Am. Rep. 679; *Davis* v. *State*, 38 Md. 15; *Macfarland's Trial*, 8 Abb. Pr. N. S. 57; *Mitchell* v. *Leech* (S. C.) 48 S. E. 290.

And a witness, who, on direct examination, gives certain medical opinions, and states they they conform to the authority of medical works, cannot be asked on cross-examination to read statements from medical works, and then be asked if he agrees with them, where the extracts do not contradict his evidence, but are evidently intended to sustain the theory of the cross-examining party. *Fisher* v. *Southern P. R. Co.* 89 Cal. 399, 26 Pac. 894.

[85]*Hall* v. *Murdock*, 114 Mich. 233, 72 N. W. 150; *Knoll* v. *State*, 55 Wis. 249, 42 Am. Rep. 704, 12 N. W. 369.

And a medical book is not rendered admissible in a prosecution for homicide by the fact that counsel for the accused ceased to cross-examine a medical witness, upon the ground that he might afterwards quote the book against him. *State* v. *O'Brien*, 7 R. I. 336.

[86]*People* v. *Millard*, 53 Mich. 63, 18 N. W. 562; *Ripon* v. *Bittel*, 30 Wis. 614; *Union P. R. Co.* v. *Yates*, 40 L. R. A. 553, 25 C. C. A. 103, 49 U. S. App. 241, 79 Fed. 584.

[87]*Hess* v. *Lowrey*, 122 Ind. 233, 7 L. R. A. 90, 17 Am. St. Rep. 355, 23 N. E. 156; *Cronk* v. *Wabash R. Co.* (Iowa) 98 N. W. 884; *State* v. *Winter*, 72 Iowa, 627, 34 N. W. 475; *Hutchinson* v. *State*, 19 Neb. 262, 27 N. W. 113; *Sale* v. *Eichberg*, 105 Tenn. 333, 52 L. R. A. 894, 59 S. W. 1020.

And to ask a medical expert who has given his opinion upon a scientific question, and stated that it was based on medical authorities, to state what the medical authorities hold upon that question, is within the legitimate scope of cross-examination, and not subject to objection that the testimony consists, not of the opinion of the witnesses, but of that of medical authors. *Hutchinson* v. *State*, 19 Neb. 262, 27 N. W. 113; *State* v. *Winter*, 72 Iowa, 627, 34 N. W. 475.

[88]*Darby* v. *Ouseley*, 36 Eng. L. & Eq. 518, 1 Hurlst. & N. 12, 25 L. J. Exch. N. S. 227, 2 Jur. N. S. 497; *Clark* v. *Com.* 111 Ky. 443, 63 S. W. 740.

[89]*Connecticut Mut. L. Ins. Co.* v. *Ellis*, 89 Ill. 516.

[90]*Clark* v. *Com.* 111 Ky. 443, 63 S. W. 740; *State* v. *Wood*, 53 N. H. 484.

And a physician who has stated, on direct examination, his knowledge of a particular subject, which was derived merely from reading and studying medical authorities, may be cross-examined as to his general reading, not by putting books before him, but by inquiries whether he had not found particular theories laid down, conflicting with the theory he had advanced as the result of his reading. *State* v. *Wood*, 53 N. H. 484.

But refusal to permit a witness who had given his opinion as to the sanity of another to answer the question whether he had read an article in a journal on insanity, in which designated statements were made, and whether the same accords with his knowledge and experience, is not an abuse of discretion, where the answer would have been a mere reiteration in another form of an opinion he had already expressed. *State* v. *Winter*, 72 Iowa, 627, 34 N. W. 475.

extracts from medical works claimed to have been read should be strictly limited to the one purpose of testing the competency of the witness as an expert and the value of his opinion.[91] And great care should be taken by the court to confine the questions within reasonable limits, and to see that quotations read are so fairly selected as to present the author's views on the subject under examination.[92]

563. Use of books in argument.—Three different theories of law exist as to the proper use to be made of medical books in argument. When statements of a medical book are a part of the evidence, the right of counsel to read them to the jury in argument is, of course, absolute.[93] But where this is not the case, the prevailing rule would seem to be that medical and scientific works cannot be read to the jury by counsel in argument though they are standard works of established authority;[94] and failure to restrain counsel, who, in his address, reads and comments on such a book as evidence in the cause, is not a waiver of error.[95] But it will be presumed on appeal that medical works read in evidence against objection were read for some legitimate purpose, where the bill of exceptions does not purport to contain all the evidence.[96] By another class of cases, however, the rule is laid down that extracts from medical works which have been accepted by the profession as authority may, when pertinent, be read to the jury by counsel as a part of the argument,[97] but this is per-

[91] *Fisher* v. *Southern P. R. Co.* 89 Cal. 399, 26 Pac. 894.

[92] *Connecticut Mut. L. Ins. Co.* v. *Ellis*, 89 Ill. 516.

Refusal to allow counsel to read in surrebuttal certain portions of a medical treatise to discredit and contradict an expert who has testified for the other side is not error, where it does not appear that the expert predicated his opinion upon the theory of that treatise. *People* v. *Goldenson*, 76 Cal. 328, 19 Pac. 161.

[93] *Scott* v. *People*, 141 Ill. 195, 30 N. E. 329.

[94] *Ashworth* v. *Kittridge*, 12 Cush. 193, 59 Am. Dec. 178; *Washburn* v. *Cuddihy*, 8 Gray, 430; *Com.* v. *Brown*, 121 Mass. 69; *Com.* v. *Sturtivant*, 117 Mass. 130, 19 Am. Rep. 401; *People* v. *Wheeler*, 60 Cal. 581, 44 Am. Rep. 70; *Quattlebaum* v. *State*, 119 Ga. 433, 46 S. E. 677; *Re Mason*, 60 Hun, 46, 14 N. Y. Supp. 434; *Huffman* v. *Click*, 77 N. C. 55; *Burt* v. *State*, 38 Tex. Crim. Rep. 397, 39 L. R. A. 305, 40 S. W. 1000, 43 S. W. 344; *Queen* v. *Crouch*, 1 Cox, C. C. 94.

The reason for the rule that medical books cannot be read in argument is that they are not evidence; and that the statements therein are hearsay, and want the sanction of an oath. *Ashworth* v. *Kittridge*, 12 Cush. 193, 59 Am. Dec. 178; *People* v. *Wheeler*, 60 Cal. 581, 44 Am. Rep. 70.

[95] *Melvin* v. *Easley*, 46 N. C. (1 Jones L.) 387, 62 Am. Dec. 171.

[96] *Ripon* v. *Bittel*, 30 Wis. 614.

And a verdict in a prosecution for rape is not vitiated by the fact that certain books on the subject of rape had been inadvertently left on the table, and were consulted by the jury during their deliberations, in the absence of evidence as to their contents, or that they influenced the jury. *People* v. *Draper*, 1 N. Y. Crim. Rep. 139.

[97] *State* v. *Hoyt*, 46 Conn. 320; *Legg* v. *Drake*, 1 Ohio St. 286; *State* v. *Coleman*, 20 S. C. 441.

But refusal to permit counsel to read extracts from a medical work as part of his address to the jury is not reversible error, where it does not appear that such extracts had any relevancy to the cause on trial. *Legg* v. *Drake*, 1 Ohio St. 286.

mitted to be done only by way of illustration.[98] And where counsel reads medical books to the jury in his argument, the court should instruct the jury that such books are not evidence, but simply theories of medical men.[99] There is still another class of cases in which the practice of permitting counsel while addressing the jury to read extracts from medical or scientific works as a part of his argument is regarded as resting entirely within the sound discretion of the trial judge,[100] which discretion will not be revised on appeal, unless it is made plainly to appear that it has been abused.[101]

III. Physical exhibition, examination, and inspection.

564. Competency generally.—The exhibition of the injured or diseased member or portion of the human body may be permitted in a proper case for the purpose of showing its actual condition and the probable causes of such condition,[1] or of enabling a medical witness to make his description and explanation of such condition more intelligible;[2] though a jury should not be permitted to determine for

[98]*Boyle* v. *State*, 57 Wis. 472, 46 Am. Rep. 41, 15 N. W. 827.

It would be an abuse of privilege for counsel to make the right to quote from medical books as a part of his argument a pretense for getting improper matter before the jury to be used as evidence. *Legg* v. *Drake*, 1 Ohio St. 287.

[99]*Yoe* v. *People*, 49 Ill. 410; *Harvey* v. *State*, 40 Ind. 516; *Cory* v. *Silcox*, 6 Ind. 39.

[100]*Union P. R. Co.* v. *Yates*, 40 L. R. A. 553, 25 C. C. A. 103, 40 U. S. App. 241, 79 Fed. 584; *Wade* v. *DeWitt*, 20 Tex. 398; *Cross* v. *State*, 11 Tex. App. 84; *Hudson* v. *State*, 6 Tex. App. 565, 32 Am. Rep. 593; *Luning* v. *State*, 1 Chand. (Wis.) 178, 2 Pinney, 215, 52 Am. Dec. 153.

[101]*Cross* v. *State*, 11 Tex. App. 84; *Hudson* v. *State*, 6 Tex. App. 565, 32 Am. Rep. 593.

[1]*Hess* v. *Lowrey*, 122 Ind. 225, 7 L. R. A. 90, 17 Am. St. Rep. 355, 23 N. E. 156; *Louisville, N. A. & C. R. Co.* v. *Wood*, 113 Ind. 544, 14 N. E. 572, 16 N. E. 197; *Swift & Co.* v. *O'Neill*, 88 Ill. App. 162; *West Chicago Street R. Co.* v. *Grencll*, 90 Ill. App. 30; *Plummer* v. *Milan*, 79 Mo. App. 439; *Orscheln* v. *Scott*, 90 Mo. App. 352; *Nebonne* v. *Concord R. Co.* 68 N. H. 296, 44 Atl. 521; *Crete* v. *Hendricks*, 2 Herdman (Neb.) 847, 90 N. W. 215; *McNaier* v. *Manhattan R. Co.* 22 N. Y. S. R. 840, 4 N. Y. Supp. 310; *Winner* v. *Lathrop*, 67 Hun, 511, 22 N. Y. Supp. 516; *Hiller* v. *Sharon Springs*, 28 Hun, 344; *Fowler* v. *Sergeant*, 1 Grant, Cas. 355; *Missouri, K. & T. R. Co.* v. *Moody* (Tex. Civ. App.) 79 S. W. 856; *Texas Midland R. Co.* v. *Brown* (Tex. Civ. App.) 58 S. W. 44.

And allowing the plaintiff in an action for personal injuries to exhibit her actual condition to the jury by lying on a lounge, with her physician attending her, when her testimony is taken, and allowing her daughter to weep, are not grounds for reversal. *Selleck* v. *Janesville*, 100 Wis. 157, 41 L. R. A. 563, 69 Am. St. Rep. 906, 75 N. W. 975.

And the fact that a plaintiff in an action for a personal injury exhibited his injured limb, and by its movements illustrated its defects, of his own volition and upon request of his counsel, without requirement of the court, does not affect the legal aspect of such action as evidence. *Arkansas River Packet Co.* v. *Hobbs*, 105 Tenn. 29, 58 S. W. 278.

[2]*Mulhado* v. *Brooklyn City R. Co.* 30 N. Y. 370.

And an expert physician and surgeon testifying in a prosecution for murder after examination of the body of the deceased may be permitted to exhibit

themselves as to the propriety of a physician's treatment by personal inspection.[3] And the exhibition of sections or portions of the human body, though not in itself evidence, may be permitted in the discretion of the court, where it might serve to illustrate a purpose, and assist the jury in understanding expert testimony;[4] and the rule is the same with reference to an exhibition of the bones of deceased persons.[5] And the exhibition to the jury of a human skull, for the purpose of explaining the nature of an injury, is not objectionable.[6] Nor is an X-ray photograph, taken by a physician having skill as such, and in taking such photographs, showing a fracture or other injury, proved to be an accurate representation of the condition in question, incompetent.[7] And such exhibitions are not subject to objection that they tend to excite sympathy or prejudice.[8] And the exhibition of a weapon or instrument which the evidence tends to show caused the injury is competent;[9] and so is the exhibition of surgical instruments by which an operation was performed.[10]

But refusal to permit a section of the human body to be exhibited was not an abuse of the discretion, where it was of doubtful utility and offensive in its nature and the testimony was reasonably intelligible in itself.[11] And an exhibition of an injury to the jury in an action for damages therefor should not be permitted, if not made for

to the jury engraved plates of parts of the human body, and parts of skeleton, in order to illustrate his testimony in describing the wounds, for the purpose of rendering his testimony more intelligible. *State* v. *Knight*, 43 Me. 11.

[3] *Carstens* v. *Hanselman*, 61 Mich. 426, 1 Am. St. Rep. 606, 28 N. W. 159.

But the principle that a jury must not be permitted to decide a case on their private knowledge only excludes evidence which is not produced at the trial, and is not violated by the exhibition of the injured leg of the plaintiff to the jury in an action for damages for a personal injury. *Hiller* v. *Sharon Springs*, 28 Hun, 344.

[4] *Knowles* v. *Crampton*, 55 Conn. 336, 11 Atl. 593.

[5] *State* v. *Wieners*, 66 Mo. 13; *Williams* v. *Nally*, 20 Ky. L. Rep. 244, 45 S. W. 874.

[6] *McNaier* v. *Manhattan R. Co.* 22 N. Y. S. R. 840, 4 N. Y. Supp. 310; *Gardiner* v. *People*, 6 Park. Crim. Rep. 155.

And the fact that the deceasd had an exceedingly thin skull is competent and important in a prosecution for manslaughter, in estimating the character and probable effect of blows shown to have been given by the defendant to the deceased. *State* v. *Phillips* (Iowa) 89 N. W. 1092.

And a physician testifying as a witness in a prosecution for murder may be permitted to examine the skull of the person killed, in court, together with the broken gun found beside such person's dead body, and explain fractures in the skull and marks on it, and show the fit of parts of the gunlock and sight in indentations or fractures in the skull. *Gardiner* v. *People*, 6 Park. Crim. Rep.. 155.

[7] *Miller* v. *Dumon*, 24 Wash. 648, 64 Pac. 804; *Bruce* v. *Beall*, 99 Tenn. 303, 41 S. W. 445; *Alberti* v. *New York, L. E. & W. R. Co.* 118 N. Y. 77, 6 L. R. A. 765, 23 N. E. 35.

[8] *Orscheln* v. *Scott*, 90 Mo. App. 352; *State* v. *Wieners*, 66 Mo. 13.

[9] *Territory* v. *Egan*, 3 Dak. 119, 13 N. W. 568; *People* v. *Morales* (Cal.) 77 Pac. 470.

[10] *McNaier* v. *Manhattan R. Co.* 22 N. Y. S. R. 840, 4 N. Y. Supp. 310.

[11] *Knowles* v. *Crampton*, 55 Conn. 336, 11 Atl. 593.

the purpose of establishing some designated fact material to the issue.[12] Where an injured person voluntarily exhibits his injuries to the jury, the opposing party is entitled to have medical experts selected by him make an examination for the purpose of testifying.[13]

565. Power to compel in divorce and criminal cases.—For the purpose of protecting the rightful succession to the property of deceased persons against fraudulent claims, courts of chancery in actions for divorce, and annulment of marriage, have exercised the right to compel compulsory physical examination by physicians in determining claims of impotence and other similar questions as affecting the validity of marriage; the right resting upon the interest which the public, as well as the parties, have in the question of upholding or dissolving the marriage state, and upon the necessity of such evidence to enable the court to exercise its jurisdiction.[14] And an order for the examination of the defendant's person by physicians in such a case is a matter of discretion with the chancellor; and the exercise of that discretion cannot be revised on error or appeal.[15] But a phys-

[12]*Nebonne* v. *Concord R. Co.* 68 N. H. 296, 44 Atl. 521.

And a witness in an action for a personal injury could not be permitted to exhibit his injured limb to the jury for the purpose of showing that the injury was similar to that suffered by the plaintiff, and that his injury had healed, with a view of disproving a claim that the plaintiff's injury was permanent, and would permanently disable him from attending to his business; the court having permitted liberal examination of the witness, and allowed all proper testimony tending to contradict the plaintiff. *Grand Lodge Brotherhood of R. Trainmen* v. *Randolph*, 186 Ill. 89, 57 N. E. 882.

[13]*Chicago, R. I. & T. R. Co.* v. *Langston*, 92 Tex. 709, 50 S. W. 574, 51 S. W. 331, Affirming 19 Tex. Civ. App. 568, 47 S. W. 1027, 48 S. W. 610.

[14]*Union P. R. Co.* v. *Botsford*, 141 U. S. 250, 35 L. ed. 734, 11 Sup. Ct. Rep. 1000; *McQuigan* v. *Delaware, L. & W. R. Co.* 129 N. Y. 50, 14 L. R. A. 466, 26 Am. St. Rep. 507, 29 N. E. 235; *Devanbagh* v. *Devanbagh*, 5 Paige, 554, 28 Am. Dec. 443; *Anonymous*, 89 Ala. 291, 7 L. R. A. 425, 18 Am. St. Rep. 116, 7 So. 100; *Stagg* v. *Edgecombe*, 32 L. J. Prob. N. S. 153, 3 Swabey & T. 240, 9 Jur. N. S. 698, 8 L. T. N. S. 643, 12 Week. Rep. 19; *B*—— v. *C*——, 32 L. J. Prob. N. S. 135; *B*—— v. *L*——, 16 Week. Rep. 943; *C*—— v. *C*——, 32 L. J. Prob. N. S. 12.

Where impotency is made a ground for annulling a marriage by statute, the power exists in a court having jurisdiction of such a case to compel a physical examination of a party to ascertain its existence, although the statute does not provide for it. *LeBarron* v. *LeBarron*, 35 Vt. 365.

So, a writ *de ventre inspiciendo* should be ordered in a case where the child in question, or children, would be entitled to a sum of money to be raised under a trust for a number of years out of real estate. *Re Blakemore*, 14 L. J. Ch. N. S. 336.

[15]*Anonymous*, 35 Ala. 226.

And where the answer in a suit to annul a marriage on the ground of physical incapacity of the defendant admits present incapacity, but denies that it existed at the time of the marriage, and the nature of the incapacity is such as to render a surgical examination of the defendant necessary, in connection with a personal examination on oath as to the commencement and progress of the disease which created the incapacity, the court will direct the defendant to submit to such an examination, although she had been previously examined *ex parte*, without oath, by her own medical attendants. *Newell* v. *Newell*, 9 Paige, 25.

ical examination in an action for a decree of nullity of marriage, based on alleged impotence, will not be granted except on the clearest proof of sincerity and necessity—especially where the parties are advanced in years.[16] With reference to criminal cases, however, compulsory physical inspection or examination is effectually prevented by constitutional provisions that no person shall be compelled in a criminal case to give evidence against himself.[17] And it has been doubted whether in cases of rape and cognate offenses the court has the power to make an order compelling the inspection of the person of the prosecutrix in the event of her refusal to submit to examination; it has been suggested that if such examination can be compelled in any case, it is a matter of judicial discretion.[18] But the constitutional provision against compelling a person in a criminal case to give evidence against himself does not apply to an investigation or examination by experts of the clothing or person of one accused of murder, for the purpose of ascertaining the presence or absence of blood stains.[19] And the rule was settled in early times, though now apparently in disuse, that on a plea of pregnancy by a woman charged with a crime punishable with death, the question should be tried by a jury of matrons, acting, if desired, with the assistance of a surgeon.[20]

[16]*Briggs* v. *Morgan* 2, Hagg. Consist. Rep. 324.

And a divorce will not be granted to a husband on the ground that his wife, at the time of the marriage, was physically and incurably incapacitated from entering into the marriage state, where three physicians testified from professional examination that her disease was incurable, and two other physicians testified that on a subsequent examination by them they found her to be entirely cured. *Anonymous*, 35 Ala. 226.

[17]*State* v. *Height*, 117 Iowa, 650, 59 L. R. A. 437, 94 Am. St. Rep. 323, 91 N. W. 935; *People* v. *McCoy*, 45 How. Pr. 216; *People* v. *Stout*, 3 Park. Crim. Rep. 670.

But the mere fact that the person examined was in custody does not show compulsion as against evidence of positive assent. *People* v. *Stout*, 3 Park. Crim. Rep. 670.

And the evidence of a physician as to the condition of the wounded head of a person charged with murder is not rendered objectionable as being compulsory evidence by the defendant against himself, by the fact that his head had been shaved for the purpose of medical attendance, where it appears that he voluntarily permitted the shaving, and the examination could have been made without it. *State* v. *Tettaton*, 159 Mo. 354, 60 S. W. 743.

And the fact that a physical examination by a physician was compulsory, and without the consent of the person examined, does not render the information obtained by the physician incompetent as a privileged communication. *State* v. *Height*, 117 Iowa, 650, 59 L. R. A. 437, 94 Am. St. Rep. 323, 91 N. W. 935.

[18]*McGuff* v. *State*, 88 Ala. 147, 16 Am. St. Rep. 25, 7 So. 35.

[19]*State* v. *Baker*, 33 W. Va. 319, 10 S. E. 639.

[20]*State* v. *Arden*, 1 Bay, 487; *Reg.* v. *Wycherley*, 8 Car. & P. 262.

If a jury of matrons called in a murder case to ascertain the condition of the accused wish to have the evidence of a surgeon before they give their verdict, they should return into the court, and the surgeon should be examined as a witness in open court. *Reg.* v. *Wycherley*, 8 Car. & P. 262.

566. Compulsion in case of personal injury.— In civil suits generally, —especially in the United States,—the prevailing rule would seem to be that a physical examination before trial cannot be compelled in the absence of a statutory enactment permitting it.[21] But such examinations in actions for personal injury are provided for by statute in some of the states; and provisions therefor are not unconstitutional as depriving one of liberty and equal protection of the laws,[22] or as interfering with the sacredness or privacy of one's person,[23] or as an infringement of the right to be confronted with witnesses.[24] And there is a strong holding that courts have an inherent jurisdiction to grant a compulsory order requiring a party to submit to such a physical examination before trial;[25] and that in actions for personal injuries the plaintiff may be required by the court, upon proper application, to submit his person to an examination for the purpose of ascertaining the character and extent of his injuries.[26] With

[21] *McQuigan* v. *Delaware, L. & W. R. Co.* 129 N. Y. 50, 14 L. R. A. 466, 26 Am. St. Rep. 507, 29 N. E. 235; *Roberts* v. *Ogdensburgh & L. C. R. Co.* 29 Hun, 154; *Neuman* v. *Third Ave. R. Co.* 18 Jones & S. 412; *Savage* v. *Murray*, March Special Term, Brooklyn City Court, 1889; *Kern* v. *Bridwell*, 119 Ind. 226, 12 Am. St. Rep. 409, 21 N. E. 664; *St. Louis & S. W. R. Co.* v. *Lindsey* (Tex. Civ. App.) 81 S. W. 87; *Union P. R. Co.* v. *Botsford*, 141 U. S. 250, 35 L. ed. 734, 11 Sup. Ct. Rep. 1000.

[22] *Lyon* v. *Manhattan R. Co.* 142 N. Y. 298, 25 L. R. A. 402, 37 N. E. 113.

[23] *Ibid.*

[24] *McGovern* v. *Hope*, 63 N. J. L. 76, 42 Atl. 830.

But an order for the physical examination of the plaintiff in an action for personal injury, under a statute providing that, in granting an order for the examination of the plaintiff before trial, the court may direct the plaintiff to submit to a physical examination, can be made only in connection with, and as part of, an order for the examination of the party before trial, and in conformity with the provisions of law for such examinations. *Lyon* v. *Manhattan R. Co.* 142 N. Y. 298, 25 L. R. A. 402, 37 N. E. 113.

And where a statute permitting a physical examination of a person who had suffered an injury takes effect after trial of an action therefor, but before the entry of judgment, evidence which may be produced by such an examination cannot be treated as newly discovered evidence, and as furnishing a ground for a new trial. *Cole* v. *Fall Brook Coal Co.* 87 Hun, 584, 34 N. Y. Supp. 572.

[25] *Schroeder* v. *Chicago, R. I. & P. R. Co.* 47 Iowa, 375; *Beckwith* v. *New York C. R. Co.* 64 Barb. 299; *Walsh* v. *Sayre*, 52 How. Pr. 334; *Shepard* v. *Missouri P. R. Co.* 85 Mo. 629, 55 Am. Rep. 390; *White* v. *Milwaukee City R. Co.* 61 Wis. 536, 50 Am. Rep. 154, 21 N. W. 524.

Walsh v. *Sayre*, 52 How. Pr. 334, and *Beckwith* v. *New York C. R. Co.* 64 Barb. 299, *supra*, are clearly overruled by the later New York cases, cited *supra*, supporting the contrary doctrine, though they, in turn, have been overruled in part by statutory enactment.

An injured person cannot be compelled to exhibit his injury to the jury, however, in an action brought by the physician attending him against the person causing the injury, who had employed the physician, for his services. *McKnight* v. *Detroit & M. R. Co.* (Mich.) 10 Det. L. N. 777, 97 N. W. 772.

[26] *Schroeder* v. *Chicago, R. I. & P. R. Co.* 47 Iowa, 375; *Sibley* v. *Smith*, 46 Ark. 275, 55 Am. Rep. 584; *Richmond & D. R. Co.* v. *Childress*, 82 Ga. 719, 3 L. R. A. 808, 14 Am. St. Rep. 189, 9 S. E. 602; *Beckwith* v. *New York C. R. Co.* 64 Barb. 299; *Shaw* v. *Van Rensselaer*, 60 How. Pr. 143; *Stuart* v. *Havens*, 17 Neb. 211, 22 N. W. 419; *Hess* v. *Lake Shore & M. S. R. Co.* 7 Pa. Co. Ct. 565; *Lane* v. *Spokane Falls & N. R.*

reference to examinations at a trial, the same conflict of authority exists; the rule on the one hand being that the court has no power to compel the examination of a party to an action by a physician in the presence of the jury;[27] and the one on the other hand being, that, in actions for personal injuries, the court may, in a proper case at the trial, direct the plaintiff to submit to a personal examination by physicians on behalf of the defendant.[28] And the court has power in a proper case, and under proper circumstances, to require the plaintiff to perform physical acts in the presence of the jury, which will tend to show the nature and extent of his injuries.[29]

Though the power is deemed to exist, however, there is no absolute right to insist upon such an examination.[30] The courts must exercise a sound discretion in compelling or refusing the examination, which is subject to review in case of abuse.[31] And an application for such an examination should not be granted, unless the ends of justice

Co. 21 Wash. 119, 46 L. R. A. 153, 75 Am. St. Rep. 821, 57 Pac. 367.

An examination properly made by a medical expert is not rendered inadmissible in evidence in an action for a personal injury by the fact that it was made after the commencement of the action. *Louisville, N. A. & C. R. Co.* v. *Falvey*, 104 Ind. 409, 3 N. E. 389, 4 N. E. 908.

[27]*Parker* v. *Enslow*, 102 Ill. 272, 40 Am. Rep. 588; *Loyd* v. *Hannibal & St. J. R. Co.* 53 Mo. 509; *McSwyny* v. *Broadway & S. A. R. Co.* 27 N. Y. S. R. 363, 7 N. Y. Supp. 456.

In *Stuart* v. *Havens*, 17 Neb. 211, 22 N. W. 419, it was held that an application for a physical examination, made during the trial, may be denied; since, if desired, it should have been made before the trial began.

[28]*White* v. *Milwaukee City R. Co.* 61 Wis. 536, 50 Am. Rep. 154, 21 N. W. 524; *Atchison, T. & S. F. R. Co.* v. *Thul*, 29 Kan. 466, 44 Am. Rep. 659; *Belt Electric Line Co.* v. *Allen*, 102 Ky. 551, 80 Am. St. Rep. 374, 44 S. W. 89; *Belle of Nelson Distilling Co.* v. *Riggs*, 104 Ky. 1, 45 S. W. 99; *Graves* v. *Battle Creek*, 95 Mich. 266, 19 L. R. A. 641, 35 Am. St. Rep. 561, 54 N. W. 757.

The question of the power to order a physical examination of a person who had suffered an injury is the same, in the absence of statutory authority, whether it is sought to compel submission to such an examination before trial, or at trial. *Cole* v. *Fall Brook Coal Co.* 87 Hun. 584, 34 N. Y. Supp. 572.

[29]*Hatfield* v. *St. Paul & D. R. Co.* 33 Minn. 130, 53 Am. Rep. 14, 22 N. W. 176.

[30]*Norton* v. *St. Louis & H. R. Co.* 40 Mo. App. 642; *Shepard* v. *Missouri P. R. Co.* 85 Mo. 629, 55 Am. Rep. 390; *Belle of Nelson Distilling Co.* v. *Riggs*, 104 Ky. 1, 45 S. W. 99.

In *Sibley* v. *Smith*, 46 Ark. 275, 55 Am. Rep. 584, however, it was held that where the plaintiff in an action for damages alleges that they are of a permanent nature, the defendant is entitled, as a matter of right, to have the opinion of a surgeon upon his condition, based upon personal examination; and the court may, upon demand, compel the plaintiff to submit to it.

[31]*Sibley* v. *Smith*, 46 Ark. 275, 55 Am. Rep. 584; *Alabama G. S. R. Co.* v. *Hill*, 90 Ala. 71, 9 L. R. A. 442, 24 Am. St. Rep. 764, 8 So. 90; *Macon R. & Light Co.* v. *Vining* (Ga.) 48 S. E. 232; *Richmond & D. R. Co.* v. *Childress*, 82 Ga. 719, 3 L. R. A. 808, 14 Am. St. Rep. 189, 9 S. E. 602; *Aspy* v. *Botkins*, 160 Ind. 170, 66 N. E. 462; *Illinois C. R. Co.* v. *Clark*, 21 Ky. L. Rep. 1549, 55 S. W. 699; *Belt Electric Line Co.* v. *Allen*, 102 Ky. 551, 80 Am. St. Rep. 374, 44 S. W. 89; *Belle of Nelson Distilling Co.* v. *Riggs*, 104 Ky. 1, 45 S. W. 99; *Shepard* v. *Missouri P. R. Co.* 85 Mo. 629, 55 Am. Rep. 390; *Hatfield* v. *St. Paul & D. R. Co.* 33 Minn. 130, 53 Am. Rep. 14, 22 N. W. 176.

imperatively demand it, and never when the party is willing to be examined by competent and disinterested physicians, without such order.[32] The question of the right to such examination depends upon the necessity therefor, in order to present all the facts of the case;[33] though neither nervous temperament nor delicacy nor refinement of feeling is a ground for refusing an examination.[34] The exam-

[32]*Gulf, C. & S. F. R. Co.* v. *Norfleet*, 78 Tex. 321, 14 S. W. 703; *International & G. N. R. Co.* v. *Underwood*, 64 Tex. 463; *Chicago & E. I. R. Co.* v. *Holland*, 122 Ill. 461, 13 N. E. 145; *Hess* v. *Lowrey*, 122 Ind. 225, 7 L. R. A. 90, 17 Am. St. Rep. 355, 23 N. E. 156; *Illinois C. R. Co.* v. *Clark*, 21 Ky. L. Rep. 1549, 55 S. W. 699; *Shepard* v. *Missouri P. R. Co.* 85 Mo. 629, 55 Am. Rep. 390.

And there is no abuse of discretion in refusing to compel a person injured to submit to a second examination by the X-ray process, where he had been burned by accident at the first examination, and had permitted two of the defendant's medical attendants to examine him. *Boelter* v. *Ross Lumber Co.* 103 Wis. 324, 79 N. W. 243.

And a ruling of the court in an action for malpractice, refusing to compel the plaintiff to allow a medical witness to examine her injured limb in the presence of the jury so as to enable him to testify as to its condition, is not rendered erroneous by the fact that she subsequently offered to exhibit her limb to the jury. *Aspy* v. *Botkins*, 160 Ind. 170, 66 N. E. 462.

[33]*International & G. N. R. Co.* v. *Underwood*, 64 Tex. 463; *Sioux City & P. R. Co.* v. *Finlayson*, 16 Neb. 578, 49 Am. Rep. 724, 20 N. W. 860; *Galesburg* v. *Benedict*, 22 Ill. App. 114; *Terre Haute & I. R. Co.* v. *Brunker*, 128 Ind. 542, 26 N. E. 178; *Owens* v. *Kansas City, St. J. & C. B. R. Co.* 95 Mo. 169, 6 Am. St. Rep. 39, 8 S. W. 350.

An expert surgical examination of the plaintiff's person is necessary to the attainment of justice in an action to recover for personal injuries, where her physician, after an examination of her person, testified to a certain condition of disability as resulting from the facts which he found in the case, and his conclusion was disputed by several other physicians and surgeons who had been examined as to their conclusions from the facts stated by him. *Alabama G. S. R. Co.* v. *Hill*, 90 Ala. 71, 9 L. R. A. 442, 24 Am. St. Rep. 764, 8 So. 90.

But refusal of the court in an action for a personal injury, to compel the person injured, who had exhibited his arm to the jury, to remove the salve from it, is not an abuse of discretion. *Swift & Co.* v. *O'Neill*, 88 Ill. App. 162.

Nor is refusal to compel a plaintiff to be examined by a physician to whom he expressed an objection, though the objection did not go to the competency or integrity of the physician proposed. *Missouri P. R. Co.* v. *Johnson*, 72 Tex. 95, 10 S. W. 325.

So, where application for an examination was not made until after the close of the plaintiff's evidence in chief and the commencement of the introduction of the defendant's evidence, and no reason is shown for the delay. *Miami & M. Turnp. Co.* v. *Baily*, 37 Ohio St. 104; *Hess* v. *Lowrey*, 122 Ind. 225, 7 L. R. A. 90, 17 Am. St. Rep. 355, 23 N. E. 156.

And where application was made only one day before the cause was called for trial, and two days after the day for which it was docketed. *Kinney* v. *Springfield*, 35 Mo. App. 97.

And where a motion to compel a plaintiff to submit to an examination is filed on the day before the trial, and denied at that time, with the statement that if, during the trial, it appeared necessary to ascertain the real condition of the plaintiff, such examination would be granted, the failure of the defendant to renew the motion after the plaintiff's testimony was in is an abandonment of it. *Sidekum* v. *Wabash, St. L. & P. R. Co.* 93 Mo. 400, 3 Am. St. Rep. 549, 4 S. W. 701.

[34]*Alabama G. S. R. Co.* v. *Hill*, 90 Ala. 71, 9 L. R. A. 442, 24 Am. St. Rep. 764, 8 So. 90.

But where the plaintiff in an action for personal injuries testifies that at the time of the trial she had not recovered, and that the injured member was not then in a normal condition, and that it had been examined by certain physicians,—it is a proper case for the court to direct a private examination of the injured member by two physicians, one of them being one of the physicians

ination, if one is permitted, will be so controlled by the court as to give both parties opportunity to have qualified witnesses present;[35] and it will be required to be so conducted as not to subject the injured person to any unnecessary annoyance or exposure.[36] And an order for such an examination may be enforced by refusal to try the cause, or to permit the giving of evidence to establish the opposing claim, until compliance.[37] And in any event unreasonable refusal to show injuries or submit to examination is competent and potent evidence against the party refusing.[38]

IV. Privilege of physicians and surgeons.

567. Origin and nature of.—At common law the information derived by physicians in their professional relation from patients was not privileged from disclosure;[39] and this has appeared to continue to

named by her. *White* v. *Milwaukee City R. Co.* 61 Wis. 536, 50 Am. Rep. 154, 21 N. W. 524.

[35]*McGovern* v. *Hope*, 63 N. J. L. 76, 42 Atl. 830.

And a plaintiff who submits to an examination by a physician cannot be deprived of the testimony of the physician upon the ground that it was made at a time when the defendant was not present. *Louisville, N. A. & C. R. Co.* v. *Falvey*, 104 Ind. 409, 3 N. E. 389, 4 N. E. 908.

But where medical experts are ordered to examine a plaintiff in an action for a personal injury, and they are called and questioned by the defendant as to the result of their examination, the plaintiff has the right to ask on cross-examination how the examination was conducted, and what questions were propounded to the plaintiff. *Ibid.*

And where an expert witness who is necessarily called by the plaintiff in an action for a personal injury, as being one who had been selected to assist at her examination, testifies unfavorably to her, it is within the discretion of the court to permit the party calling him to put questions to him in the nature of cross-examination. *Quaife* v. *Chicago & N. W. R. Co.* 48 Wis. 513, 33 Am. Rep. 821, 4 N. W. 658.

[36]*McGovern* v. *Hope*, 63 N. J. L. 76, 42 Atl. 830.

[37]*Hess* v. *Lake Shore & M. S. R. Co.* 7 Pa. Co. Ct. 565; *Miami & M. Turnp. Co.* v. *Baily*, 37 Ohio St. 104.

[38]*Union P. R. Co.* v. *Botsford*, 141 U. S. 250, 35 L. ed. 734, 11 Sup. Ct. Rep. 1000; *Kinney* v. *Springfield*, 35 Mo. App. 97. *Contra*, *Louisville, N. A. & C. R. Co.* v. *Falvey*, 104 Ind. 409, 3 N. E. 389, 4 N. E. 908.

The jury may give such weight to a refusal on the part of the plaintiff to submit to a medical examination as they think it ought to have; but a refusal to charge that they have the right to infer from that fact that the examination would not disclose any fact favorable to the plaintiff is not error; and in such case the question as to whether he could have been compelled to submit to such examination is of no consequence. *Elfers* v. *Woolley*, 116 N. Y. 294, 22 N. E. 548.

[39]*People* v. *Stout*, 3 Park. Crim. Rep. 670; *Allen* v. *Public Administrator*, 1 Bradf. 221; *Edington* v. *Ætna L. Ins. Co.* 77 N. Y. 564; *Springer* v. *Byram*, 137 Ind. 15, 23 L. R. A. 244, 45 Am. St. Rep. 159, 36 N. E. 361; *Winters* v. *Winters*, 102 Iowa, 53, 63 Am. St. Rep. 428, 71 N. W. 184; *Campau* v. *North*, 39 Mich. 606, 33 Am. Rep. 433; *Territory* v. *Corbett*, 3 Mont. 50; *Steagald* v. *State*, 22 Tex. App. 464, 3 S. W. 771; *Boyle* v. *Northwestern Mut. Relief Asso.* 95 Wis. 312, 70 N. W. 351; *Rex* v. *Gibbons*, 1 Car. & P. 97; *Broad* v. *Pitt*, 3 Car. & P. 518; *Duchess of Kingston's Case*, 20 How. State Tr. 643, 2 Smith, Lead. Cas. 713; *Wilson* v. *Rastall*, 4 T. R. 760, 2 Revised Rep. 515; *Greenough* v. *Gaskell*, 1 Myl. & K. 103, Coop. t. Brougham, 96; *Browne* v. *Carter*, 9 L. C. Jur. 163.

be the rule in England,[40] and in a number of the American states.[41] In many of the states, however, the disclosure by physicians and surgeons of confidential information acquired by them from their patients for the purposes of their employment is prohibited by statute;[42] the statutory provision being designed to create a privilege in the case of the medical profession analogous to, and commensurate with, that which has always existed in the case of the legal profession.[43] Such provisions are intended for the protection of the patient,[44] and are designed to enable him to make known his condition to his physician without danger of any disclosure which would annoy his feelings, damage or impair his standing while living, or disgrace his memory when dead;[45] and, being remedial in their nature, they are to be liberally construed;[46] though, being in derogation of the rules of common law, they cannot be extended beyond their express terms.[47] And though they are state enactments, they are obligatory upon Federal courts in common-law trials while sitting in the states enacting them;[48] and they are not abrogated by a statutory provision enabling a party to an action to examine the adverse party

[40] See *Rex* v. *Gibbons*, 1 Car. & P. 97.

[41] *Steagald* v. *State*, 22 Tex. App. 464, 3 S. W. 771.

[42] *New York, C. & St. L. R. Co.* v. *Mushrush*, 11 Ind. App. 192, 37 N. E. 954, 38 N. E. 871; *Springer* v. *Byram*, 137 Ind. 15, 23 L. R. A. 244, 45 Am. St. Rep. 159, 36 N. E. 361; *Gurley* v. *Park*, 135 Ind. 440, 35 N. E. 279; *Williams* v. *Johnson*, 112 Ind. 273, 13 N. E. 872; *Winters* v. *Winters*, 102 Iowa, 53, 63 Am. St. Rep. 428, 71 N. W. 184; *Baxter* v. *Cedar Rapids*, 103 Iowa, 599, 72 N. W. 790; *Keast* v. *Santa Ysabel Gold Min. Co.* 136 Cal. 256, 68 Pac. 771; *Colorado Fuel & Iron Co.* v. *Cummings*, 8 Colo. App. 541, 46 Pac. 875; *Haworth* v. *Kansas City Southern R. Co.* 94 Mo. App. 215, 68 S. W. 111; *Robinson* v. *Supreme Commandery, U. O. G. C.* 77 App. Div. 215, 79 N. Y. Supp. 13; *Re Darragh*, 52 Hun, 591, 5 N. Y. Supp. 58; *Metropolitan L. Ins. Co.* v. *Howle*, 68 Ohio St. 614, 68 N. E. 4; *Kelley* v. *Highfield*, 15 Or. 277, 14 Pac. 744; *Boyle* v. *Northwestern Mut. Relief Asso.* 95 Wis. 312, 70 N. W. 351; *Shafer* v. *Eau Claire*, 105 Wis. 239, 81 N. W. 409.

The application of a statutory provision protecting a patient against disclosure by his physician of confidential professional information is not affected by the fact that at the time of making the disclosure the patient did not know of the existence of the statutory protection. *People* v. *Stout*, 3 Park. Crim. Rep. 670.

[43] *Ibid.*; *Pierson* v. *People*, 79 N. Y. 424, 35 Am. Rep. 524.

[44] *State* v. *Depoister*, 21 Nev. 107, 25 Pac. 1000; *People* v. *Stout*, 3 Park. Crim. Rep. 670.

[45] *State* v. *Depositer*, 21 Nev. 107, 25 Pac. 1000; *Springer* v. *Byram*, 137 Ind. 15, 23 L. R. A. 244, 45 Am. St. Rep. 159, 36 N. E. 361; *Cramer* v. *Hurt*, 154 Mo. 112, 77 Am. St. Rep. 752, 55 S. W. 258.

[46] *People* v. *Stout*, 3 Park. Crim. Rep. 670; *Grattan* v. *Metropolitan L. Ins. Co.* 80 N. Y. 281, 36 Am. Rep. 617.

But statutory provisions prohibiting the disclosure of confidential communications between physician and patient are construed with great strictness in favor of the person against whom the evidence is sought to be given. *Post* v. *State*, 14 Ind. App. 452, 42 N. E. 1120.

[47] *Kendall* v. *Grey*, 2 Hilt. 300.

[48] *Connecticut Mut. L. Ins. Co.* v. *Union Trust Co.* 112 U. S. 250 28 L. ed. 708, 5 Sup. Ct. Rep. 119; *Mutual Ben. L. Ins Co.* v. *Robison*, 22 L. R. A. 325, 7 C. C. A. 444, 19 U. S. App. 266, 58 Fed. 723.

as a witness.[49] Nor does a statutory provision making all public records of any of the departments of a city presumptive evidence of their contents render competent a physician's certificate on file in such a department, as against a claim of privilege.[50]

Though the doctrine of privilege of physicians as adopted in America has never been applied in England, medical information with regard to a personal injury, obtained by the party causing it for the express purpose of determining whether to yield to a claim for damages, has there been held to be confidential, and protected from disclosure.[51]

568. Who are physicians within the statutory prohibition.—Statutory provisions forbidding the disclosing of confidential communications made by a patient to his physician apply only to cases of communications to, and information acquired by, a person duly authorized to practise physic, while attending a patient in a professional capacity,[52] and do not include communications made to others in attendance at the physician's office, in his absence,[53] and do not exclude the testimony of others, who overheard professional communications,

[49]*Edington* v. *Mutual L. Ins. Co.* 5 Hun, 1; *Edington* v. *Mutual L. Ins. Co.* 67 N. Y. 185. The latter case reverses the former on a different ground.

[50]*Robinson* v. *Supreme Commandery, U. O. G. C.* 77 App. Div. 215, 79 N. Y. Supp. 13, 38 Misc. 97, 77 N. Y. Supp. 111; *Davis* v. *Supreme Lodge, K. of H.* 165 N. Y. 159, 58 N. E. 891, Affirming 35 App. Div. 354, 54 N. Y. Supp. 1023.

[51]*Cossey* v. *London, B. & S. Coast R. Co.* L. R. 5 C. P. 146, 39 L. J. C. P. 174, 22 L. T. N. S. 19, 18 Week. Rep. 493; *Friend* v. *London, C. & D. R. Co.* 25 Week. Rep. 735, 43 L. J. Exch. N. S. 696, L. R. 2 Exch. Div. 437, 36 L. T. N. S. 729.

But an agreement between an insurance company and friends of an insured person that reports made by the friends as to the assured's health and habits should be regarded as strictly confidential, though perhaps binding as between the parties to the agreement, does not affect the rights of the persons claiming under the insurance policy; and such persons are entitled to an inspection of the reports. *Mahony* v. *National Widows' Life Assur. Fund*, L. R. 6 C. P. 252, 40 L. J. C. P. N. S. 203, 24 L. T. N. S. 548, 19 Week. Rep. 722.

And a confidential report to an insurance company by its medical officer as to the state of health of a party whose life is proposed to be insured is not of such a confidential character as to entitle it to protection; and its production may be required when material. *Lee* v. *Hammerton*, 10 L. T. N. S. 730, 12 Week. Rep. 975.

[52]*Kendall* v. *Grey*, 2 Hilt. 300; *Weil* v. *Cowles*, 45 Hun, 307.

But in the absence of objection upon that ground, it will be presumed that a physician had the license which the law requires to entitle him to practise, so as to bring him within the prohibition against the disclosure of confidential communications by a patient, though he did not produce his license, and was not examined as to being a person duly authorized to practise. *Record* v. *Saratoga Springs*, 46 Hun, 448, 12 N. Y. S. R. 395.

And the failure of a duly licensed physician to register his license may subject him to penalties, and deprive him of a right to recover compensation for services; but it does not affect the privilege of his patient of excluding from disclosure information acquired by him in the line of his professional duty. *McGillicuddy* v. *Farmers' Loan & T. Co.* 26 Misc. 55, 55 N. Y. Supp. 242.

[53]*Kendall* v. *Grey*, 2 Hilt. 300.

as to what they heard.[54] Nor can a druggist decline to testify as to what medicines or drugs he sells to a designated person, upon the ground that the knowledge is privileged.[55] And a dentist does not practise medicine or surgery within the meaning of such a statutory prohibition.[56] And veterinary surgeons are not within provisions making information acquired by physicians and surgeons privileged and incompetent.[57] Nor does a statute rendering a physician or surgeon, authorized to practise his profession under the laws of the state, incompetent to testify as to information acquired in attending a patient, apply to a physician residing in another state, not authorized to practise in the state.[58]

Statutory provisions protecting from disclosure information of physicians obtained in a professional capacity, however, embrace physicians attending or prescribing for a patient in any way, whether they are the usual medical attendants or not;[59] and a patient can no more be compelled to testify to confidential communications made by him than can the physician.[60] And the privilege against disclosure extends to information obtained by a consulting physician, as well as a physician directly employed by the patient.[61] And where two physicians are partners occupying the same office, it being the cus-

[54]*Springer* v. *Byram*, 137 Ind. 15, 23 L. R. A. 244, 45 Am. St. Rep. 159, 36 N. E. 361; *Masons Union Life Ins. Asso.* v. *Brockman*, 26 Ind. App. 182, 59 N. E. 401; *Bowles* v. *Kansas City*, 51 Mo. App. 416.

[55]*Brown* v. *Hannibal & St. J. R. Co.* 66 Mo. 588; *Deutschmann* v. *Third Ave. R. Co.* 87 App. Div. 505, 84 N. Y. Supp. 887.

[56]*People* v. *De France*, 104 Mich. 563, 28 L. R. A. 139, 62 N. W. 709.

[57]*Hendershot* v. *Western U. Teleg. Co.* 106 Iowa, 529, 68 Am. St. Rep. 313, 76 N. W. 828.

[58]*Head Camp, P. J. W. of W.* v. *Loeher*, 17 Colo. App. 247, 68 Pac. 136.

[59]*Edington* v. *Mutual L. Ins. Co.* 5 Hun, 1; *Re Johnson*, 32 App. Div. 634, 52 N. Y. Supp. 1081; *Post* v. *State*, 14 Ind. App. 452, 42 N. E. 1120.

[60]*Aspy* v. *Botkins*, 160 Ind. 170, 66 N. E. 462; *Post* v. *State*, 14 Ind. App. 452, 42 N. E. 1120.

[61]*Raymond* v. *Burlington, C. R. & N. R. Co.* 65 Iowa, 152, 21 N. W. 495; *Prader* v. *National Masonic Acci. Asso.* 95 Iowa, 149, 63 N. W. 601; *Renihan* v. *Dennin*, 103 N. Y. 573, 57 Am. Rep. 770, 9 N. E. 320; *Morris* v. *New York, O. & W. R. Co.* 148 N. Y. 88, 51 Am. St. Rep. 675, 42 N. E. 410; *Green* v. *Nebagamain*, 113 Wis. 508, 89 N. W. 520.

And where a physician was employed to attend a patient who had suffered a personal injury, and afterwards the family physician came and took charge of the case, and a few hours later the physician first called again visited the patient, but administered no treatment, the exclusion of a statement then made by the patient to the physician as privileged is not error. *Patterson* v. *Cole*, 67 Kan. 441, 73 Pac. 54.

But a communication made by one physician to another for the purpose of securing the aid of the latter in the commission of an abortion is not privileged. *State* v. *Smith*, 99 Iowa, 26, 61 Am. St. Rep. 219, 68 N. W. 428.

And the relation of physician and patient does not exist between an injured person and a physician to whom the attending physician brought the injured person, and asked him to examine him and see what was the matter, so as to render incompetent a question as to what he found. *Henry* v. *New York, L. E. & W. R. Co.* 57 Hun, 76, 10 N. Y. Supp. 508.

tom of one to give attention to patients in the absence of the other, one of them cannot be permitted to testify as to information secured from a patient of the other in consultation in the office of the firm.[62]

569. To what proceedings the prohibition applies.—The primary purpose of statutory provisions prohibiting the disclosure by a physician or surgeon of information acquired in attending a patient in his professional capacity, and which was necessary to enable him to act, has been held to be to declare the rule governing the examination of physicians or surgeons as witnesses in judicial proceedings only.[63] But the inspection of the books of a physician has been denied, where they contained, as a part of his record, information derived from his patient of a privileged character.[64] And it has been held that a physician cannot be compelled as a judgment debtor to deliver over his books in supplementary proceedings, when they contained confidential information.[65] And statutory provisions of this class apply to actions by a physician or surgeon for services rendered, as well as to other actions.[66] And evidence in a divorce case, obtained by compulsory physical examination of a party by a physician, will be suppressed and disregarded.[67] Nor will a motion for a continuance on the ground of an absent witness be entertained, where the evidence of

[62] *Ætna L. Ins. Co.* v. *Deming*, 123 Ind. 384, 24 N. E. 86, 375.

And a physician suing for professional services rendered a deceased patient cannot establish his claim by calling another physician who attended the patient as medical adviser, to divulge information respecting the services rendered by the plaintiff to the patient, acquired while the plaintiff and the witness were prescribing professionally for her, where the testimony would disclose the ailment with which the patient suffered, and the nature of the treatment. *McGillicuddy* v. *Farmers' Loan & T. Co.* 26 Misc. 55, 55 N. Y. Supp. 242.

[63] *Buffalo Loan, Trust & S. D. Co.* v. *Knights Templar & Masonic Mut. Aid Asso.* 126 N. Y. 450, 22 Am. St. Rep. 839, 27 N. E. 942.

Within the rule as thus limited, a physician's certificate in proofs of death under an insurance policy, operating as an admission that the patient died from a stated cause, is not incompetent. *Ibid.*

[64] *Mott* v. *Consumers' Ice Co.* 2 Abb. N. C. 143; *Lowenthal* v. *Leonard*, 20 App. Div. 330, 46 N. Y. Supp. 818.

[65] *Kelly* v. *Levy*, 29 N. Y. S. R. 659, 8 N. Y. Supp. 849.

[66] *Van Allen* v. *Gordon*, 83 Hun, 379, 31 N. Y. Supp. 907; *McGillicuddy* v. *Farmers' Loan & T. Co.* 26 Misc. 55, 55 N. Y. Supp. 242.

[67] *Page* v. *Page*, 51 Mich. 88, 16 N. W. 245.

And a disclosure by a physician before a master in a divorce case, of information which he acquired in attending a patient in a professional character, after objection on his part and being compelled by the master to answer, being in direct violation of the statutory provision as to privilege, should be laid entirely out of consideration in deciding the case. *Johnson* v. *Johnson*, 4 Paige, 460; *Johnson* v. *Johnson*, 14 Wend. 637. The latter case was reversed by the former on different grounds.

But refusal of the court on application for an allowance for support in a wife's action for divorce, to strike out affidavits of a person who acted as physician for both, is not error, where some of the matters contained in them were not confidential, and the court refused to consider the confidential matter. *Schlosser* v. *Schlosser*, 29 Ind. 488.

the absent witness would consist of information which came to a physician in his professional capacity.[68] And a deposition by a physician containing information acquired by him in the discharge of his professional duties furnishes no ground for a new trial.[69]

It has been held, however, that the physician of a decedent may properly testify in a testamentary case when called upon by the decedent's executor;[70] and that the attending physician of a deceased person may be called as a witness by either party claiming under the deceased, in a dispute between a devisee or legal representative and the heirs at law of the deceased.[71] But the rule stated generally in cases from the same and other states is that statutory prohibitions against disclosure of information acquired by physicians in a professional capacity apply to testamentary cases, as well as to any other.[72] And it has been held that the rule against divulging confidential information does not apply to, and exclude the testimony of, an attending physician in an inquisition of lunacy;[73] though the contrary is also asserted.[74] And while such provisions are generally applicable

[68] *Carthage Turnp. Co.* v. *Andrews*, 102 Ind. 138, 52 Am. Rep. 653, 1 N. E. 364; *Post* v. *State*, 14 Ind. App. 452, 42 N. E. 1120.

[69] *Excelsior Mut. Aid Asso.* v. *Riddle*, 91 Ind. 84; *Harris* v. *Rupel*, 14 Ind. 209.

And a commission to take the testimony of a physician will not be ordered, where the physician would be incompetent to testify on the ground of privilege; on the theory that a condition might exist which would render his testimony competent. *Enright* v. *Brooklyn Heights R. Co.* 26 App. Div. 538, 50 N. Y. Supp. 609.

But a deposition containing such disclosures, taken previous to the enactment of a law forbidding the disclosure by a physician of confidential professional information, may be used subsequent to the physician's death, notwithstanding the enactment in the meantime of a statute prohibiting such disclosure. *Wells* v. *New England Mut. L. Ins. Co.* 187 Pa. 166, 40 Atl. 802.

[70] *Whelpley* v. *Loder*, 1 Dem. 368.

[71] *Winters* v. *Winters*, 102 Iowa, 53, 63 Am. St. Rep. 428, 71 N. W. 184.

[72] *Renihan* v. *Dennin*, 103 N. Y. 573, 57 Am. Rep. 770, 9 N. E. 320; *Mason* v. *Williams*, 53 Hun, 398, 6 N. Y. Supp. 479; *Re Connor*, 27 N. Y. S. R. 905, 7 N. Y. Supp. 855; *Van Orman* v. *Van Orman*, 34 N. Y. S. R. 824, 11 N. Y. Supp. 931; *Allen* v. *Public Administrator*, 1 Bradf. 221; *Heuston* v. *Simpson*, 115 Ind. 62, 7 Am. St. Rep. 409, 17 N. E. 261.

And where privileged communications to a physician are admitted in a will contest over objection, and on motion to strike them out the ruling is reserved until near the close of the case, when the motion is granted so far as the testimony was based upon knowledge derived or acquired by the physician while attending the testatrix professionally, without specifying definitely what evidence was stricken out, it is ground for reversal on appeal. *Re* Hannah, 11 N. Y. S. R. 807.

[73] *Re Benson*, 16 N. Y. Supp. 111.

[74] *Re Baird*, 11 N. Y. S. R. 263; *Re Hoyt*, 20 Abb. N. C. 162.

And in *Brigham* v. *Gott*, 20 N. Y. S. R. 420, 3 N. Y. Supp. 518, it was held that the testimony of an attending physician as to the mental condition of a patient would ordinarily have great weight; and its improper admission could not be disregarded on appeal as doing no harm.

And it is to be observed that the rule of *Re Benson*, 16 N. Y. Supp. 111, it not positively stated, and that the court based its decision on absence of objection to the testimony of the physicians in case the prohibition should be held to apply.

in criminal cases for the protection of the patient,[75] the disclosure of information obtained by a physician in his professional capacity cannot be thereby prevented for the sole purpose of shielding a person charged with crime.[76] Nor can the rule be invoked where the evidence sought to be educed tends to disprove murder;[77] or when the communication is for an unlawful purpose, having for its object the commission of a crime.[78]

570. Right to object to disclosure.—The privilege conferred by statutory prohibitions against the disclosure of professional communications by physicians is that of the patient, and not of the physician; and he can neither be compelled nor allowed, without the consent of the patient or his proper representative, to make the disclosure.[79] The physician himself cannot refuse to testify when the patient consents.[80] The right to object to the disclosure of confidential information by a physician, however, is not confined to the patient, but exists also in the parties to any actions in which such information is sought to be put in evidence.[81] And where the lips of a physician

[75] See *People* v. *Murphy*, 101 N. Y. 126, 54 Am. Rep. 661, 4 N. E. 326; *People* v. *Brower*, 53 Hun, 217, 6 N. Y. Supp. 730.

And where a third person under great alarm and anxiety employed a physician to try to save a woman's life, and made statements to the physician with reference to what had taken place, knowing it, and suspecting it was the cause of her sudden prostration, and feeling that the physician ought to know it and to govern his treatment accordingly, the information being such that the physician should know it, and having been given for the sole purpose of enabling him to act properly,—the information is protected by statutory provision forbidding a physician to betray confidential information. *People* v. *Brower*, 53 Hun, 217, 6 N. Y. Supp. 730.

[76] *People* v. *Harris*, 136 N. Y. 423, 33 N. E. 65; *Pierson* v. *People*, 79 N. Y. 424, 35 Am. Rep. 524, Affirming 18 Hun, 239; *People* v. *Lane*, 101 Cal. 513, 36 Pac. 16; *People* v. *West*, 106 Cal. 89, 39 Pac. 207; *Hauk* v. *State*, 148 Ind. 238, 46 N. E. 127, 47 N. E. 465; *State* v. *Height*, 117 Iowa, 650, 59 L. R. A. 437, 94 Am. St. Rep. 323, 91 N. W. 935; *State* v. *Grimmell*, 116 Iowa, 596, 88 N. W. 342.

[77] *People* v. *Benham*, 30 Misc. 466, 63 N. Y. Supp. 923.

[78] *State* v. *Kidd*, 89 Iowa, 56, 56 N. W. 263; *State* v. *Smith*, 99 Iowa, 26, 61 Am. St. Rep. 219, 68 N. W. 428; *Hauk* v. *State*, 148 Ind. 238, 46 N. E. 127, 47 N. E. 465; *Hewitt* v. *Prime*, 21 Wend. 79.

But the testimony of a physician in regard to advice asked for by a patient with reference to producing a miscarriage is not withdrawn from the prohibition against disclosing professional communications, upon the ground that the privilege does not extend to protect parties seeking information or advice as to prospective infractions of the law; since such act might be necessary to save life, and would, therefore, be a lawful one. *Guptill* v. *Verback*, 58 Iowa, 98, 12 N. W. 125; *Post* v. *State*, 14 Ind. App. 452, 42 N. E. 1120.

And the rule excluding privileged communications between physician and patient does not prevent a physician from testifying to his opinion that the death of the patient was caused by wounds inflicted in an attempt to produce a miscarriage. *State* v. *Grimmell*, 116 Iowa, 596, 88 N. W. 342.

[79] *Boyle* v. *Northwestern Mut. Relief Asso.* 95 Wis. 312, 70 N. W. 351; *Re Nelson*, 132 Cal. 182, 64 Pac. 294; *Cahen* v. *Continental L. Ins. Co.* 9 Jones & S. 296.

[80] *Zimmer* v. *Third Ave. R. Co.* 36 App. Div. 265, 55 N. Y. Supp. 308.

[81] See *Hunn* v. *Hunn*, 1 Thomp. & C. 501.

were sealed by statutory prohibition during the lifetime of his patient, they must remain closed where he loses his patient by death.[82] And the right may be exercised by the beneficiary under an insurance policy upon the life of the deceased patient.[83] And the assignee of a beneficiary of a certificate of insurance is also entitled to raise the question of privilege concerning the testimony of the physician of the insured.[84] The right to object is strictly personal, however, to the extent of rendering it unavailable to a third party not standing in the same position as the original party.[85] An intention to object to privileged testimony is sufficiently manifested by an objection to a continuance on the ground of the absence of the physician as a witness; and in such case a continuance, since it would be fruitless, will not be granted.[86] And counsel in argument should not be permitted to comment on the refusal of a patient to consent to the revealing of professional information.[87] But, in the absence of express statutory provision, a jury is not prohibited from drawing inferences from the refusal of the patient to permit his physician to testify; though it is not justified in drawing any inference not warranted by the evidence.[88]

571. To what information prohibition applies.—Statutory provisions rendering physicians or surgeons incompetent to testify concerning information acquired from a patient while attending him in a professional character, and which was necessary to enable them to prescribe, forbid the disclosure, not only of information acquired by oral communications, but also of all information acquired through observation or examination of the patient after submission to their care,[89] or from

[82] *Westover* v. *Ætna L. Ins. Co.* 99 N. Y. 56, 52 Am. Rep. 1, 1 N. E. 104; *Grattan* v. *Metropolitan L. Ins. Co.* 80 N. Y. 281, 36 Am. Rep. 617; *Ætna L. Ins. Co.* v. *Deming*, 123 Ind. 384, 24 N. E. 86, 375; *Penn Mut. L. Ins. Co.* v. *Wiler*, 100 Ind. 92, 50 Am. Rep. 769; *Shuman* v. *Supreme Lodge, K. of H.* 110 Iowa, 480, 81 N. W. 717.

[83] *Grattan* v. *National L. Ins. Co.* 15 Hun, 74; *Dilleber* v. *Home L. Ins. Co.* 69 N. Y. 256, 25 Am. Rep. 182; *Cahen* v. *Continental L. Ins. Co.* 9 Jones & S. 296; *Penn Mut. L. Ins. Co.* v. *Wiler*, 100 Ind. 92, 50 Am. Rep. 769.

And a certificate of a physician in attendance during the last illness of a deceased aunt of an insured person, the physician having no knowledge except such as he acquired in his professional capacity, as well as his testimony as to the cause of her death, is privileged, and cannot be used in an action upon the insurance policy to prove the particular disease of which the aunt died. *Davis* v. *Supreme Lodge, K. of H.* 165 N. Y. 159, 58 N. E. 891, Affirming 35 App. Div. 354, 54 N. Y. Supp. 1023.

[84] *Briesenmeister* v. *Supreme Lodge, K. of P.* 81 Mich. 525, 45 N. W. 977; *Edington* v. *Mutual L. Ins. Co.* 67 N. Y. 185.

[85] *Edington* v. *Mutual L. Ins. Co.* 67 N. Y. 185.

[86] *Post* v. *State*, 14 Ind. App. 452, 42 N. E. 1120.

[87] *Kelley* v. *Highfield*, 15 Or. 277, 14 Pac. 744. *Contra*, *Warsaw* v. *Fisher*, 24 Ind. App. 46, 55 N. E. 42.

[88] *Deutschmann* v. *Third Ave. R. Co.* 87 App. Div. 505, 84 N. Y. Supp. 887; *Cooley* v. *Foltz*, 85 Mich. 47, 48 N. W. 176.

[89] *Colorado Fuel & Iron Co.* v. *Cummings*, 8 Colo. App. 541, 46 Pac. 875; *Gurley* v. *Park*, 135 Ind. 440, 35 N. E. 279; *Heuston* v. *Simpson*, 115 Ind. 62, 7 Am. St. Rep. 409, 17 N. E. 261; *Springer* v. *Byram*, 137 Ind. 15, 23 L.

statements of others surrounding the patient,[90] including all knowledge disclosed to the physician or surgeon for the purpose of enabling him to act.[91] And a statutory provision against the disclosure of information obtained by a physician in his professional capacity is not confined to information of a confidential nature.[92] Facts learned by a physician while in the discharge of his duties as such, which he would not otherwise have learned, are privileged.[93] And a physician prohibited by law from disclosing information acquired profession-

R. A. 244, 45 Am. St. Rep. 159, 36 N. E. 361; *Penn Mut. L. Ins. Co.* v. *Wiler*, 100 Ind. 92, 50 Am. Rep. 769; *Masonic Mut. Ben. Asso.* v. *Beck*, 77 Ind. 203, 40 Am. Rep. 295; *Post* v. *State*, 14 Ind. App. 452, 42 N. E. 1120; *Baxter* v. *Cedar Rapids*, 103 Iowa, 599, 72 N. W. 790; *State* v. *Smith*, 99 Iowa, 26, 61 Am. St. Rep. 219, 68 N. W. 428; *Prader* v. *National Masonic Acci. Asso.* 95 Iowa, 149, 63 N. W. 601; *Battis* v. *Chicago, R. I. & P. R. Co.* (Iowa) 100 N. W. 543; *Briggs* v. *Briggs*, 20 Mich. 34; *Briesenmeister* v. *Supreme Lodge, K. of P.* 81 Mich. 525, 45 N. W. 977; *Rose* v. *Supreme Court, O. of P.* 126 Mich. 577, 85 N. W. 1073; *Thompson* v. *Ish*, 99 Mo. 160, 17 Am. St. Rep. 552, 12 S. W. 510; *Gartside* v. *Connecticut Mut. L. Ins. Co.* 76 Mo. 446, 43 Am. Rep. 765; *Kling* v. *Kansas*, 27 Mo. App. 231; *Streeter* v. *Breckenridge*, 23 Mo. App. 244; *Linz* v. *Massachusetts Mut. L. Ins. Co.* 8 Mo. App. 363; *Smart* v. *Kansas City*, 91 Mo. App. 586; *James* v. *Kansas City*, 85 Mo. App. 20; *Grattan* v. *Metropolitan L. Ins. Co.* 80 N. Y. 281, 36 Am. Rep. 617; *Grattan* v. *Metropolitan L. Ins. Co.* 92 N. Y. 274, 44 Am. Rep. 372; *Edington* v. *Mutual L. Ins. Co.* 67 N. Y. 185; *Edington* v. *Mutual L. Ins. Co.* 5 Hun, 1; *People* v. *Stout*, 3 Park. Crim. Rep. 670; *Fox* v. *Union Turnp. Co.* 59 App. Div. 363, 69 N. Y. Supp. 551; *Re Van Alstine*, 26 Utah, 193, 72 Pac. 942; *Kenyon* v. *Mondovi*, 98 Wis. 50, 73 N. W. 314; *McGowan* v. *Supreme Court, I. O. F.* 104 Wis. 173, 80 N. W. 603.

The purpose of the statutory exclusion of evidence as to information obtained by a physician in his professional capacity is to invite confidence and prevent a breach thereof; and it is aimed at confidential communications of a patient to his physician, and such information as a physician may acquire of the secret ailments by an examination of the person of the patient. *Edington* v. *Ætna L. Ins. Co.* 77 N. Y. 564.

[90] *Edington* v. *Mutual L. Ins. Co.* 67 N. Y. 185; *Re Van Alstine*, 26 Utah, 193, 72 Pac. 942.

[91] *Prader* v. *National Masonic Acci. Asso.* 95 Iowa, 149, 63 N. W. 601; *Briggs* v. *Briggs*, 20 Mich. 34; *People* v. *Stout*, 3 Park. Crim. Rep. 670.

Privileged information includes information derived from a failure to communicate a thing; and a physician called upon to attend an injury cannot be asked if the patient ever mentioned to him a fall as the cause of it. *Smart* v. *Kansas City*, 91 Mo. App. 586.

[92] *Renihan* v. *Dennin*, 103 N. Y. 573, 57 Am. Rep. 770, 9 N. E. 320; *Grattan* v. *Metropolitan L. Ins. Co.* 80 N. Y. 281, 36 Am. Rep. 617; *Jones* v. *Brooklyn, B. & W. E. R. Co.* 21 N. Y. S. R. 169, 3 N. Y. Supp. 253.

[93] *Finnegan* v. *Sioux City*, 112 Iowa, 232, 83 N. W. 907; *Doran* v. *Cedar Rapids & M. City R. Co.* 117 Iowa, 442, 90 N. W. 815; *Re Nelson*, 132 Cal. 182, 64 Pac. 294; *Kling* v. *Kansas*, 27 Mo. App. 231; *Re Van Alstine*, 26 Utah, 193, 72 Pac. 942.

The information which a physician is competent to communicate is not alone such as he acquired independently of disclosures made to him by the patient, but such as he acquired independently, not only of such disclosures, but also of any examination or inspection of the patient by the physician to enable him to give medical aid. *Streeter* v. *Breckenridge*, 23 Mo. App. 244.

And what a physician observed as to who accompanied his patient, and what the patient and the person accompanying her said in reference to the subject-matter of the examination for which she called, are privileged, as well as communications made to him. *Post* v. *State*, 14 Ind. App. 452, 42 N. E. 1120.

ally in attending a patient cannot be called upon for an opinion based upon such information.[94] And the information thus excluded includes the condition of an injured patient, whether obvious or otherwise,[95] as well as statements made by him as to the manner in which the injury occurred;[96] and the nature of the patient's injuries[97] or disease,[98] and the cause of death,[99] are all strictly within statutory prohibition.

[94]*Thompson* v. *Ish*, 99 Mo. 160, 17 Am. St. Rep. 552, 12 S. W. 510; *Grattan* v. *Metropolitan L. Ins. Co.* 28 Hun, 430.

[95]*Jones* v. *Brooklyn, B. & W. E. R. Co.* 21 N. Y. S. R. 169, 3 N. Y. Supp. 253; *Shuman* v. *Supreme Lodge. K. H.* 110 Iowa, 480, 81 N. W. 717; *Streeter* v. *Breckenridge*, 23 Mo. App. 244.

But an inquiry addressed on cross-examination to a physician in an action for a personal injury, as to whether an examination of the person of the plaintiff, to which he had testified, was in his opinion a full and fair examination, is proper; though refusal to permit it is not reversible error, where another physician had testified that it was an accurate measurement, and his testimony had not been contradicted. *McSwyny* v. *Broadway & S. A. R. Co.* 27 N. Y. S. R. 363, 7 N. Y. Supp. 456.

[96]*New York, C. & St. L. R. Co.* v. *Mushrush*, 11 Ind. App. 192, 37 N. E. 954, 38 N. E. 871; *Pennsylvania Co.* v. *Marion*, 123 Ind. 415, 7 L. R. A. 687, 18 Am. St. Rep. 330, 23 N. E. 973; *Keist* v. *Chicago G. W. R. Co.* 110 Iowa, 32, 81 N. W. 181; *Raymond* v. *Burlington, C. R. & N. R. Co.* 65 Iowa, 152, 21 N. W. 495. And see *Enright* v. *Brooklyn Heights R. Co.* 26 App. Div. 538, 50 N. Y. Supp. 609. *Contra, Green* v. *Metropolitan Street R. Co.* 171 N. Y. 201, 89 Am. St. Rep. 807, 63 N. E. 958.

But a physician who attended a person after an injury by collision with a railroad train is not incompetent to testify in an action for the injury that the plaintiff stated to him that, as he approached the railroad track, he heard persons shouting to him, and saw a man swing his hat, but did not think where he was until the train was on him; such information not being necessary to enable the physician to prescribe. *Brown* v. *Rome, W. & O. R. Co.* 45 Hun, 439.

And where a surgeon is called to dress and attend to a wound received by a brakeman, statements made by the brakeman to him with respect to the position which he occupied immediately preceding the occurrence of the accident are not privileged. *Kansas City, Ft. S. & M. R. Co.* v. *Murray*, 55 Kan. 336, 40 Pac. 646.

[97]*Corbett* v. *St. Louis, I. M. & S. R. Co.* 26 Mo. App. 621.

[98]*Jones* v. *Preferred Bankers' Life Assur. Co.* 120 Mich. 211, 79 N. W. 304; *Lammiman* v. *Detroit Citizens' Street R. Co.* 112 Mich. 602, 71 N. W. 153; *Nelson* v. *Nederland L. Ins. Co.* 110 Iowa, 600, 81 N. W. 807; *Redmond* v. *Industrial Ben. Asso.* 78 Hun, 104, 28 N. Y. Supp. 1075, Affirmed in 150 N. Y. 167, 44 N. E. 769. *Contra, Metropolitan L. Ins. Co.* v. *Howle*, 68 Ohio St. 614, 68 N. E. 4.

And permitting physicians in an action upon an insurance policy, in which a breach of warranty and false representations were alleged, in that the insured was suffering from a disease of the throat and tongue at the time of the application, to testify that they had treated him for some disease for a long time anterior to the date of the policy, and that they were specialists. and accustomed to treat cancers and diseases of the tongue and throat, is a violation of the spirit of the statutory provision prohibiting the disclosure by physicians of confidential information, though they were not called upon to tell for what they treated him. *McCormick* v. *United Life & Acci. Ins. Asso.* 79 Hun, 340, 29 N. Y. Supp. 364.

But an affidavit of a physician in proofs of loss under an insurance policy, stating that he treated the insured for a certain disease, from which he died, though such statement is unnecessary and gratuitous, is not privileged, and should be received in evidence as in the nature of an admission. *Nelson* v. *Nederland L. Ins. Co.* 110 Iowa, 600, 81 N. W. 807.

And permitting a physician to give the date of a visit for the purpose of fixing the time of other events is not error. *Dalman* v. *Koning*, 54 Mich. 320, 20 N. W. 61.

[99]*Grattan* v. *Metropolitan L. Ins. Co.* 80 N. Y. 281, 36 Am. Rep. 617; *Cahen* v. *Continental L. Ins. Co.* 69 N. Y. 300.

Confidential communications between a physician and patient which are privileged, however, are strictly limited to those made by the patient to the physician which were necessary to enable the physician to act for the patient in his professional capacity.[1] It is not sufficient merely that the physician acquired the information while attending the patient.[2] And information, though acquired by a physician in his professional capacity, is not privileged, where it consisted merely of facts which were open to the observation of any person who had seen and conversed with the patient.[3] Likewise, occurrences outside of the relation of physician and patient, or before the patient submits himself to the physician, or the physician addresses himself to his duty, are not privileged;[4] nor are observations of the physician,

[1]*Territory* v. *Corbett*, 3 Mont. 50; *Collins* v. *Mack*, 31 Ark. 684; *Re Black*, 132 Cal. 392, 64 Pac. 695; *Kansas City, Ft. S. & M. R. Co.* v. *Murray*, 55 Kan. 336, 40 Pac. 646; *Briesenmeister* v. *Supreme Lodge, K. of P.* 81 Mich. 525, 45 N. W. 977; *Campau* v. *North*, 39 Mich. 606, 33 Am. Rep. 433; *James* v. *Kansas City*, 85 Mo. App. 20; *Kendall* v. *Grey*, 2 Hilt. 300; *Edington* v. *Ætna L. Ins. Co.* 77 N. Y. 564; *Re O'Neil*, 26 N. Y. S. R. 242, 7 N. Y. Supp. 197; *Steele* v. *Ward*, 30 Hun, 555; *Herrington* v. *Winn*, 60 Hun, 235, 14 N. Y. Supp. 612; *De Jong* v. *Erie R. Co.* 43 App. Div. 427, 60 N. Y. Supp. 125; *Brown* v. *Rome, W. & O. R. Co.* 45 Hun, 439; *Renihan* v. *Dennin*, 103 N. Y. 573, 57 Am. Rep. 770, 9 N. E. 320; *Griebel* v. *Brooklyn Heights R. Co.* 68 App. Div. 204, 74 N. Y. Supp. 126; *Deutselmann* v. *Third Ave. R. Co.* 87 App. Div. 505, 84 N. Y. Supp. 887.

[2]*Edington* v. *Ætna L. Ins. Co.* 77 N. Y. 564; *Green* v. *Metropolitan Street R. Co.* 171 N. Y. 201, 89 Am. St. Rep. 807, 63 N. E. 958. *Contra, Kling* v. *Kansas*, 27 Mo. App. 231.

And a physician cannot decline to answer a hypothetical question which did not involve the statement of any matter or information which he had learned or acquired in a professional capacity, on the ground that it might open the door to cross-examination which might make it necessary for him to reveal professional secrets confided to him. *Valensin* v. *Valensin*, 73 Cal. 106, 14 Pac. 397.

But professional information upon the part of a physician concerning a patient is not rendered admissible in evidence against the claim that it was privileged, by the fact that the physician had often visited the patient as a friend, and that some of his impressions may have been gained on friendly visits, where he is unable to separate the knowledge which he acquired as a physician from that which he acquired as a friend. *Re Darragh*, 52 Hun. 591, 5 N. Y. Supp. 58.

[3]*Staunton* v. *Parker*, 19 Hun, 55; *Burley* v. *Barnhard*, 9 N. Y. S. R. 587; *Herrington* v. *Winn*, 60 Hun, 235, 14 N. Y. Supp. 612; *Steele* v. *Ward*, 30 Hun, 555; *Re Loewenstine*, 2 Misc. 323, 21 N. Y. Supp. 931; *Antauga County* v. *Davis*, 32 Ala. 703; *Norton* v. *Moberly*, 18 Mo. App. 457.

But it is only when the information of a physician or surgeon concerning a patient is such as is apparent on that casual inspection which anyone might make without disclosure of any kind on the part of the patient that it can be said that there was no information acquired from the patient under conditions expressed in the statute. *Linz* v. *Massachusetts Mut. L. Ins. Co.* 8 Mo. App. 363.

And in *Kling* v. *Kansas*, 27 Mo. App. 231, it was held that there is no distinction between external signs connected with the patient, which all may see, and hidden or secret signs which a physician, as such, alone can see, with reference to the question as to what information is necessary to enable a physician to prescribe; that the test is, how was the information acquired; and that it does not matter that it could have been acquired in a different way.

[4]*Linz* v. *Massachusetts Mut. L. Ins. Co.* 8 Mo. App. 363; *Hamilton* v. *Crowe*, 175 Mo. 634, 75 S. W. 389; *Re Loewenstine*, 2 Misc. 323, 21 N. Y. Supp. 931; *Jennings* v. *Supreme Council, L. A.*

or declarations of the patient, directed, not to the purpose of procuring information which would enable the physician to act, but to some entirely foreign purpose,[5] as, for example, information acquired by a physician in a conversation with his patient while calling upon him to collect a bill for services previously rendered.[6] And a physician may be used as a witness to prove facts within his knowledge other than those which came to him peculiarly as a physician,[7] such as the mere fact of treatment of a patient by the physician,[8] and the number and dates of his visits.[9] Nor is a physician, called upon to attend a patient, precluded from testifying as to the patient's condition at that time with regard to sobriety, where that condition had nothing to do with his employment.[10] And a family physician of a testator may testify in a will contest to family events in no way connected with

Benev. Asso. 81 App. Div. 76, 81 N. Y. Supp. 90; *Steele* v. *Ward*, 30 Hun, 555; *Herries* v. *Waterloo*, 114 Iowa, 374, 86 N. W. 306; *Seifert* v. *State*, 160 Ind. 464, 98 Am. St. Rep. 340, 67 N. E. 100.

[5]*Hoyt* v. *Hoyt*, 9 N. Y. S. R. 731, Affirmed in 112 N. Y. 493, 20 N. E. 402; *Re O'Neil*, 26 N. Y. S. R. 242, 7 N. Y. Supp. 197; *Pandjiris* v. *McQueen*, 37 N. Y. S. R. 602, 15 N. Y. Supp. 705; *De Jong* v. *Erie R. Co.* 43 App. Div. 427, 60 N. Y. Supp. 125; *Coryell* v. *Stone*, 62 Ind. 307; *Hamilton* v. *Crowe*, 175 Mo. 634, 75 S. W. 389; *Metropolitan L. Ins. Co.* v. *Howle*, 68 Ohio St. 614, 68 N. E. 4.

A physician called to attend a woman in childbirth may testify in a bastardy proceeding with reference to alleged statements of the woman as to the parentage of her child, such statements not being necessary to enable him to prescribe or act. *People* v. *Cole*, 113 Mich. 83, 71 N. W. 455; *People ex rel. Mendelovich* v. *Abrahams*, 88 N. Y. Supp. 924.

And a statement made to his physician, by a person injured by being struck by a locomotive, that he did not observe the train until he was struck, is not privileged or incompetent. *De Jong* v. *Erie R. Co.* 43 App. Div. 427, 60 N. Y. Supp. 125.

[6]*Bower* v. *Bower*, 142 Ind. 194, 41 N. E. 523; *Seifert* v. *State*, 160 Ind. 464, 67 N. E. 100; *Holloway* v. *Kansas City* (Mo.) 82 S. W. 89.

[7]*Corbett* v. *St. Louis, I. M. & S. R. Co.* 26 Mo. App. 621.

[8]*Dittrich* v. *Detroit*, 98 Mich. 245, 57 N. W. 125; *Briesenmeister* v. *Supreme Lodge, K. of P.* 81 Mich. 525, 45 N. W. 977; *Brown* v. *Metropolitan L. Ins. Co.* 65 Mich. 306, 8 Am. St. Rep. 894, 32 N. W. 610; *Deutschmann* v. *Third Ave. R. Co.* 87 App. Div. 505, 84 N. Y. Supp. 887; *Numrich* v. *Supreme Lodge, K. & L. H.* 24 N. Y. S. R. 287, 3 N. Y. Supp. 552; *Nelson* v. *Nederland L. Ins. Co.* 110 Iowa, 600, 81 N. W. 807; *Price* v. *Standard Life & Acci. Ins. Co.* 90 Minn. 264, 95 N. W. 1118; *Sovereign Camp, W. of W.* v. *Grandon*, 64 Neb. 39, 89 N. W. 448; *Metropolitan L. Ins. Co.* v. *Howle*, 68 Ohio St. 614, 68 N. E. 4.

And the testimony of a physician in an action for tort, that the plaintiff had called upon him, and that he had examined her, and that she told him she had sued for her injuries, and there was going to be a lawsuit over it, and that she would want him as a witness,—is not incompetent as a privileged communication. *Cooley* v. *Foltz*, 85 Mich. 47, 48 N. W. 176.

[9]*Price* v. *Standard Life & Acci. Ins. Co.* 90 Minn. 264, 95 N. W. 1118; *Sovereign Camp, W. of W.* v. *Grandon*, 64 Neb. 39, 89 N. W. 448; *Deutschmann* v. *Third Ave. R. Co.* 87 App. Div. 505, 84 N. Y. Supp. 887.

[10]*Kling* v. *Kansas*, 27 Mo. App. 231; *Lincoln* v. *Detroit*, 101 Mich. 245, 59 N. W. 617.

In *Finnegan* v. *Sioux City*, 112 Iowa, 232, 83 N. W. 907, however, it was held that the attending physician of a patient cannot be called upon to testify as to whether or not, at the time he was attending his patient in his professional capacity, the patient was suffering from delirium tremens.

physical complaints or condition.[11] Nor does the law rendering incompetent privileged communications to a physician affect the admissibility of prescriptions of a physician in the hands of a druggist, on identification by him.[12]

It will be assumed, however, from the existence of the relationship of physician and patient, in the absence of evidence to the contrary, that information acquired by the physician was imparted for the purpose of aiding him in the performance of his professional employment; and it is not necessary to show in the first instance, by formal proof, that the information was necessary to enable him to prescribe.[13] Though where a party seeks to exclude evidence on the ground that it is privileged as a professional communication, the general burden rests with him to bring the case within the purview of the statute.[14]

572. Existence of relationship of physician and patient.—To render information of a physician or surgeon incompetent on the

[11]*Re Boury*, 8 N. Y. S. R. 809; *Re O'Neil*, 26 N. Y. S. R. 242, 7 N. Y. Supp. 197; *Re Halsey*, 2 Connoly, 220, 9 N. Y. Supp. 441.

But a physician cannot testify in an action to set aside a will, as to the mental condition of his patient, from his knowledge derived from conversations with her, the information thus received being confidential. *Gurley* v. *Park*, 135 Ind. 440, 35 N. E. 279.

[12]*Deutschmann* v. *Third Ave. R. Co.* 87 App. Div. 505, 84 N. Y. Supp. 887.

But the introduction in evidence of the prescriptions of a physician, not limited to the purpose of fixing their dates, is improper as an indirect attempt to violate the privilege; since the nature of the malady of the patient might thereby be made known to those skilled in medicine. *Nelson* v. *Nederland L. Ins. Co.* 110 Iowa, 600, 81 N. W. 807.

[13]*Edington* v. *Mutual L. Ins. Co.* 67 N. Y. 185; *Grattan* v. *Metropolitan L. Ins. Co.* 80 N. Y. 281, 36 Am. Rep. 617; *Sloan* v. *New York C. R. Co.* 45 N. Y. 125; *Feeney* v. *Long Island R. Co.* 116 N. Y. 375, 5 L. R. A. 544, 22 N. E. 402; *Re Darragh*, 52 Hun, 591, 5 N. Y. Supp. 58; *Brigham* v. *Gott*, 20 N. Y. S. R. 420, 3 N. Y. Supp. 518; *Jones* v. *Brooklyn, B. & W. E. R. Co.* 21 N. Y. S. R. 169, 3 N. Y. Supp. 253; *State* v. *Kennedy*, 177 Mo. 98, 75 S. W. 979; *Munz* v. *Salt Lake City R. Co.* 25 Utah, 220, 70 Pac. 852.

And information obtained by a physician in his professional capacity is not deprived of the statutory privilege against disclosure by the fact that it was obtained at a first interview, and that the doctor had not known the patient previous to that interview. *Grattan* v. *Metropolitan L. Ins. Co.* 24 Hun, 43.

[14]*People* v. *Koerner*, 154 N. Y. 355, 48 N. E. 730; *Edington* v. *Ætna L. Ins. Co.* 77 N. Y. 564; *People* v. *Schuyler*, 43 Hun, 88; *Wiel* v. *Cowles*, 45 Hun, 307; *Heath* v. *Broadway & S. A. R. Co.* 25 Jones & S. 496, 8 N. Y. Supp. 863; *Deutschmann* v. *Third Ave. R. Co.* 87 App. Div. 505, 84 N. Y. Supp. 887; *Stowell* v. *American Co-operative Relief Asso.* 1 Silv. Sup. Ct. 246, 5 N. Y. Supp. 233; *Griffiths* v. *Metropolitan Street R. Co.* 171 N. Y. 106, 63 N. E. 808; *Linz* v. *Massachusetts Mut. L. Ins. Co.* 8 Mo. App. 363; *James* v. *Kansas City*, 85 Mo. App. 20.

The evidence of a physician will not be held incompetent as privileged merely because he is a physician, where the facts which, under the statute, would render him incompetent, are not in any way shown. *Bowles* v. *Kansas City*, 51 Mo. App. 416.

Before permitting the examination of a physician to proceed where privilege is asserted, the court will afford the party asserting it an opportunity to ascertain by whom the physician was called, so that the question of privilege can properly be passed upon. *Tracey* v. *Metropolitan Street R. Co.* 49 App. Div. 197, 63 N. Y. Supp. 242, Affirmed in 168 N. Y. 653, 61 N. E. 1135.

ground of privilege there must have been a relation of confidence between them to be abused; there is no privilege in the absence of the relationship of physician and patient.[15] And a dead man is not a patient capable of sustaining the relation of confidence toward a physician, which is the foundation of the rule excluding privileged communications, so as to exclude the testimony of the physician as to examination after death.[16] And the signing of a will as a witness is not a professional act which will render incompetent information acquired by a physician at the time of acting as a witness.[17] Whenever a physician has attended a patient, however, under circumstances calculated to induce the opinion that the attendance was of a professional nature, and the patient has yielded to examination, or made communications which he would not otherwise have made, the seal of secrecy is set on the transaction.[18] And knowledge of a physician as to the condition of his patient, discovered during attendance, is not removed from the protection of the statute by the fact that he was called with reference to an entirely different trouble;[19] or by the fact that the physician's services were forced upon the patient against his will;[20] or by the fact that the physician was called at the instance of, and paid by, the employer of the person examined, not for the purpose of prescribing, but to ascertain his ability.[21] Nor is the privilege affected by the fact that the physician was employed and paid by the person who caused the injury, and not by the person injured;[22] though

[15] *Scripps* v. *Foster*, 41 Mich. 742, 3 N. W. 216; *Jacobs* v. *Cross*, 19 Minn. 523, Gil. 454; *Stowell* v. *American Co-operative Relief Asso.* 1 Silv. Sup. Ct. 246, 23 N. Y. S. R. 706, 5 N. Y. Supp. 233; *Babcock* v. *People*, 15 Hun, 347; *Marx* v. *Manhattan R. Co.* 56 Hun, 575, 10 N. Y. Supp. 159.

And where an attorney engaged in the duties of his profession visited the county clerk's office, and while there requested the county clerk, who was a physician, to look at an eruption upon his skin, and the county clerk did so gratuitously, it cannot be said that he attended the attorney as a patient, in his professional character, so as to render his opinion as to the character and cause of the eruption inadmissible in evidence. *Edington* v. *Ætna L. Ins. Co.* 13 Hun, 543.

[16] *Harrison* v. *Sutter Street R. Co.* 116 Cal. 156, 47 Pac. 1019.

[17] *Re Freeman*, 46 Hun, 458, 12 N. Y. Supp. 175.

[18] *People* v. *Stout*, 3 Park. Crim. Rep. 670. And see *Munz* v. *Salt Lake City R. Co.* 25 Utah, 220, 70 Pac. 852.

The fact of treatment is the decisive test of privilege, as to whether or not the relationship of physician and patient existed. *Meyer* v. *Supreme Lodge, K. of P.* (N. Y.) 64 L. R. A. 839, 70 N. E. 111.

[19] *Nelson* v. *Oneida*, 156 N. Y. 219, 66 Am. St. Rep. 556, 50 N. E. 802; *Re Redfield*, 116 Cal. 637, 48 Pac. 794; *Re Flint*, 100 Cal. 391, 34 Pac. 863.

[20] *Meyer* v. *Supreme Lodge, K. of P.* (N. Y.) 64 L. R. A. 839, 70 N. E. 111, Affirming 82 App. Div. 359, 81 N. Y. Supp. 813.

[21] *Grattan* v. *Metropolitan L. Ins. Co.* 24 Hun, 43.

[22] *New York, C. & St. L. R. Co.* v. *Mushrush*, 11 Ind. App. 192, 37 N. E. 954, 38 N. E. 871; *Freel* v. *Market Street Cable R. Co.* 97 Cal. 40, 31 Pac. 730; *Keist* v. *Chicago G. W. R. Co.* 110 Iowa, 32, 81 N. W. 181; *Raymond* v. *Burlington, C. R. & N. R. Co.* 65 Iowa, 152, 21 N. W. 495; *Battis* v. *Chicago, R. I. & P. R. Co.* (Iowa) 100 N. W. 543; *Weitz* v. *Mound City R. Co.* 53 Mo. App. 39; *Griffiths* v. *Metropolitan Street R. Co.* 63 App. Div. 86, 71 N. Y. Supp. 406;

the rule is different where the physician goes to the patient, with the knowledge of the latter, entirely for the purpose of ascertaining the nature and character of the injuries of the patient, and of reporting them to his employer.[23] And though the physician was called for the express purpose of securing his testimony as a witness, he can only testify at the instance, or with the consent, of the patient.[24]

So, the relationship of physician and patient exists between a hospital physician and a patient in the hospital so as to render information acquired by the physician from the patient privileged and incompetent.[25] And a person confined in jail who accepts the services of a physician is entitled to prevent a disclosure by the physician of professional information acquired by him to enable him to prescribe, notwithstanding the fact that he was selected by the public prosecutor, and sent by him.[26] But information obtained by a jail physician on examination of a prisoner is not privileged, where he knew that the physician was there at the instance of the prosecuting attorney, and voluntarily submitted to the examination.[27] And a physician sent by the public authorities to a jail to examine and report upon the

Munz v. *Salt Lake City R. Co.* 25 Utah, 220, 70 Pac. 852.

[23]*Freel* v. *Market Street Cable R. Co.* 97 Cal. 40, 31 Pac. 730; *Heath* v. *Broadway & S. A. R. Co.* 25 Jones & S. 496, 8 N. Y. Supp. 863.

And proof that a physician was at the scene of an accident when the ambulance arrived; and that he rendered first aid to the person injured; and that he was the attending physician at the hospital to which the injured person was taken, and rode with him in the ambulance about three blocks on the way; and that he was surgeon in the employ of the one who caused the injury, and had a talk with the injured person as part of his duty to his employer,—does not show the relation of physician and patient so as to warrant the exclusion of the conversation had between them at the time of the injury. *Griffiths* v. *Metropolitan Street R. Co.* 171 N. Y. 106, 63 N. E. 808.

[24]*Doran* v. *Cedar Rapids & M. C. R. Co.* 117 Iowa, 442, 90 N. W. 815.

[25]*Barker* v. *Cunard S. S. Co.* 91 Hun, 495, 36 N. Y. Supp. 256; *Duggan* v. *Phelps*, 82 App. Div. 509, 81 N. Y. Supp. 916.

And a physician making the rounds of a hospital with the regular attending physician, who admits that he partly attended a patient therein, and assisted in making an examination of her, will be deemed to be her physician so as to render inadmissible in evidence information acquired from such examination, though he claims to have made the rounds in the hospital merely out of curiosity, to acquire information in interesting cases. *Grossman* v. *Supreme Lodge, K. & L. H.* 3 Silv. Sup. Ct. 111, 6 N. Y. Supp. 821.

And where a hospital is supported by contributions from the employees of two corporations, deducted from their monthly wages, and devoted to the maintenance of a hospital and the hiring of physicians employed about it, the relation of physician and patient exists between one of the hospital physicians and an employee of one of the companies, so as to render information obtained by such physician while attending the employee professionally a privileged communication, though the payment of the contributions was in part compulsory, and the companies were apparently responsible for the hospital, and for all bills contracted in connection with it. *Colorado Fuel & Iron Co.* v. *Cummings*, 8 Colo. App. 541, 46 Pac. 875.

[26]*People* v. *Murphy*, 101 N. Y. 126, 54 Am. Rep. 661, 4 N. E. 326; *People* v. *Schuyler*, 43 Hun, 88; *People* v. *Stout*, 3 Park. Crim. Rep. 670.

[27]*People* v. *Glover*, 71 Mich. 303, 38 N. W. 874.

sanity of a prisoner is not the prisoner's professional adviser so as to prevent his disclosure either as to conditions or statements made;[28] and the same rule applies to a physician making an examination by agreement of the parties, for the purpose of furnishing desired information.[29]

573. Determination as to admissibility.—Where a physician is called as a witness, and facts appear which indicate that the information sought for was necessary for professional treatment, the trial court is the sole judge of its admissibility;[30] the opinion of the physician himself on the subject of privilege is of no importance.[31] But where the relation of physician and patient is established, if by any fair intendment communications made have relation to the physical or mental condition of the patient, the court is bound to hold them privileged.[32] And a physician whose testimony is objected to as privileged should be allowed to explain as to the nature of his information, and as to whether or not it was necessary to enable him to act professionally.[33] And hypothetical questions asked physicians with reference to their patients, for an opinion on a hypothetical state of facts, in which they are directed to lay aside all knowledge or information received by

[28]*People* v. *Sliney*, 137 N. Y. 569, 33 N. E. 150; *People* v. *Koerner*, 154 N. Y. 355, 48 N. E. 730; *People* v. *Kemmler*, 119 N. Y. 580, 24 N. E. 9; *Meyer* v. *Supreme Lodge, K. of P.* (N. Y.) 64 L. R. A. 839, 70 N. E. 111; *Nesbit* v. *People*, 19 Colo. 441, 36 Pac. 221.

And information concerning a patient, acquired by a physician who had been called upon to make an examination for the purpose of ascertaining whether her mental condition was such as to warrant trusting the control of her property to her, is not information necessary to prescribe, and is not, therefore, privileged. *Re Bruendl*, 102 Wis. 45, 78 N. W. 169.

But though a physician is sent for the sole purpose of examining a person confined in jail, as to sanity, if he prescribes for him during the visit, the relation of physician and patient is thereby created, and disclosures made are privileged. *Meyer* v. *Supreme Lodge, K. of P.* (N. Y.) 64 L. R. A. 839, 70 N. E. 111.

[29]*Clark* v. *State*, 8 Kan. App. 782, 61 Pac. 814. And see *State* v. *Kennedy*, 177 Mo. 98, 75 S. W. 979, dissenting opinion by Gantt. P. J.

[30]*Griffiths* v. *Metropolitan Street R. Co.* 171 N. Y. 106, 63 N. E. 808.

And an improper ruling admitting the testimony of a physician as not privileged, in an action for a personal injury, cannot be held to be harmless because the jury held that the defendant was not responsible for the injury. *Scher* v. *Metropolitan Street R. Co.* 71 App. Div. 28, 75 N. Y. Supp. 625.

[31]*Griffiths* v. *Metropolitan Street R. Co.* 171 N. Y. 106, 63 N. E. 808.

And a physician is incompetent to testify as to whether or not the symptoms of a disease with which a patient suffered were such that he might have discovered the disease without the aid of any specific statement by the patient, or without the fact being confidentially disclosed to him by the patient, or a friend, or through a private examination. *Grattan* v. *Metropolitan L. Ins. Co.* 80 N. Y. 281, 36 Am. Rep. 617.

[32]*Battis* v. *Chicago, R. I. & P. R. Co.* (Iowa) 100 N. W. 543.

But testimony of a physician will not be rejected as privileged from the mere fact that some other witness has incidentally testified to professional treatment by the physician of the person concerning whom the inquiry is made. *Jennings* v. *Supreme Council, L. A. Benev. Asso.* 81 App. Div. 76, 81 N. Y. Supp. 90.

[33]*Herrington* v. *Winn*, 60 Hun, 235, 14 N. Y. Supp. 612; *Re Halsey*, 2 Connoly, 220, 9 N. Y. Supp. 441.

them in their professional capacity, leaving them to decide as to what it is, are proper, and not in violation of privilege.[34]

574. Breach of privilege as a personal injury.—It has been held in actions involving other questions, that statutory provisions that physicians and surgeons shall not be compelled to disclose any information acquired by them in their confidential relationship to their patients, being for the benefit of the patient, should be construed to mean that they shall neither be compelled nor allowed to disclose such information;[35] and that the publication by a physician of facts concerning an operation performed by him, without the approbation of the person operated upon, is a plain breach of professional duty.[36] It is suggested by this view, though no cases have been found on the subject, that a physician or surgeon might be held liable in damages to a patient for a breach of privilege, as a personal injury; though in the absence of malice the action would probably be one in which the recovery would be confined to the actual pecuniary injury proved to have been suffered.[37]

575. Waiver; right of, and effect generally.—Statutory provisions that physicians and surgeons shall be incompetent to testify concerning any information which they may have acquired from any patient while attending him professionally do not create an absolute disquali-

[34] *Meyer* v. *Standard Life & Acci. Ins. Co.* 8 App. Div. 74, 40 N. Y. 419; *People* v. *Schuyler*, 43 Hun, 88; *Fisher* v. *Fisher*, 129 N. Y. 654, 29 N. E. 951.

And a hypothetical question asked a jail physician with reference to the condition of a prisoner charged with homicide, which assumes no facts which occurred subsequent to the day of the homicide, is not incompetent as privileged, though the witness, after answering, said that he did not think it possible for him to answer without being influenced by the opinion formed while acting as defendant's physician. *People* v. *Schuyler*, 43 Hun, 88, Affirmed in 106 N. Y. 298, 12 N. E. 783.

[35] *Boyle* v. *Northwestern Mut. Relief Asso.* 95 Wis. 312, 70 N. W. 351.

[36] *Sullings* v. *Shakespeare*, 46 Mich. 408, 41 Am. Rep. 166, 9 N. W. 451.

And counsel is justified in case of a regular systematic violation of duty owed by a physician to his patient, by the disclosure of confidential communications, in calling the attention of the jury to the violation of the law, and the abuse of the position which he occupied. *Loudoun* v. *Eighth Ave. R. Co.* 16 App. Div. 152, 44 N. Y. Supp. 742.

[37] Where a physician took an unprofessional, young, unmarried man with him, and introduced him, and permitted him to remain in the house of a patient in a confinement case, permitting them to believe that he was a physician and acting as his assistant, both are guilty of deceit; and the wrong done entitles the injured party to recover damages sustained from shame and mortification. And a remark upon the part of a physician that he had brought a friend along to help carry his things is not sufficient to put the patient and her husband on their guard, or to remove the presumption that the man thus brought was himself a practising physician. *De May* v. *Roberts*, 46 Mich. 160, 41 Am. Rep. 154, 9 N. W. 146.

So, in *Storrs* v. *Scougale*, 48 Mich. 387, 12 N. W. 502, it was said with reference to testimony in violation of professional confidence, given by a physician, though apparently without objection, that every reputable physician must know of the existence of the statute, and that the physician had no business to give such testimony.

fication upon their part to testify, but create a privilege for the protection of the patient, which may be waived;[38] permitting such waiver not being contrary to public policy.[39] And the same principle applies with reference to waiver of privilege whether the physician called as a witness is a consulting physician or one directly employed;[40] and the waiver may be either express or implied.[41] And where the statutory privilege has been once removed by the patient, and the information has lawfully been made public, constituting an admission, the right to further objection to its disclosure is lost.[42] But the waiver of the privilege on a former trial does not preclude objection to the revealing of professional information on a later one, where the waiver was an incident in the mode of trial, and in no sense an admission of the party.[43]

576. Who may waive.—The seal of secrecy and confidence placed by law upon information obtained by a physician from a patient in his professional capacity, being a personal privilege of the patient, can be waived by him, and by him alone.[44] It is not the privilege of the physician, and is not to be waived by him.[45] And though the patient is

[38]*Carrington* v. *St. Louis*, 89 Mo. 208, 58 Am. Rep. 108, 1 S. W. 240; *Blair* v. *Chicago & A. R. Co.* 89 Mo. 383, 1 S. W. 350; *Davenport* v. *Hannibal*, 108 Mo. 471, 18 S. W. 1122; *Thompson* v. *Ish*, 99 Mo. 160, 17 Am. St. Rep. 552, 12 S. W. 510; *Squires* v. *Chillicothe*, 89 Mo. 226, 1 S. W. 23; *Cramer* v. *Hurt*, 154 Mo. 112, 77 Am. St. Rep. 752, 55 S. W. 258; *Keller* v. *Home L. Ins. Co.* 95 Mo. App. 627, 69 S. W. 612; *Lissak* v. *Crocker Estate Co.* 119 Cal. 442, 51 Pac. 688; *Fraser* v. *Jennison*, 42 Mich. 206, 3 N. W. 882; *Grand Rapids I. R. Co.* v. *Martin*, 41 Mich. 667, 3 N. W. 173; *Edington* v. *Ætna L. Ins. Co.* 13 Hun, 543; *Allen* v. *Public Administrator*, 1 Bradf. 221.

The general rule is that where the evidence of an attending physician is offered by the patient or his representative, it is competent and admissible; but where it is offered by the opposite party, the physician cannot testify against the objection of the patient or his representative. *Groll* v. *Tower*, 85 Mo. 249, 55 Am. Rep. 358; *Squires* v. *Chillicothe*, 89 Mo. 226, 1 S. W. 23.

But a party to an action cannot be asked while testifying as a witness whether he is willing to waive his privilege as to confidential communications of a physician. *McConnell* v. *Osage*, 80 Iowa, 293, 8 L. R. A. 778, 45 N. W. 550.

[39]*Dougherty* v. *Metropolitan L. Ins. Co.* 87 Hun, 15, 33 N. Y. Supp. 873.

[40]*Lane* v. *Boicourt*, 128 Ind. 420, 25 Am. St. Rep. 442, 27 N. E. 1111.

[41]*State* v. *Depoister*, 21 Nev. 107, 25 Pac. 1000.

[42]*McKinney* v. *Grand Street, P. P. & F. R. Co.* 104 N. Y. 352, 10 N. E. 544; *Morris* v. *New York, O. & W. R. Co.* 148 N. Y. 88, 51 Am. St. Rep. 675, 42 N. E. 410; *Schlotterer* v. *Brooklyn & N. Y. Ferry Co.* 89 App. Div. 508, 85 N. Y. Supp. 847.

And where a physician has made an affidavit to facts derived in a professional capacity, for use against his patient, and the affidavit is lost, he may be compelled by the adverse party, on occasion arising for the use of such affidavit by such party, to again make affidavit to such facts. *Mason* v. *Libbey*, 2 Abb. N. C. 137.

[43]*Grattan* v. *Metropolitan L. Ins. Co.* 92 N. Y. 274, 44 Am. Rep. 372; *Briesenmeister* v. *Supreme Lodge, K. of P.* 81 Mich. 525, 45 N. W. 977; *Burgess* v. *Sims Drug Co.* 114 Iowa, 275, 54 L. R. A. 364, 89 Am. St. Rep. 359, 86 N. W. 307.

[44]*Gurley* v. *Park*, 135 Ind. 440, 35 N. E. 279; *Storrs* v. *Scougale*, 48 Mich. 387, 12 N. W. 502; *Lincoln* v. *Detroit*, 101 Mich. 245, 59 N. W. 617. And see *Re Nelson*, 132 Cal. 182, 64 Pac. 294.

[45]*Storrs* v. *Scougale*, 48 Mich. 387, 12 N. W. 502.

But where the patient consents or waives the privilege, the physician can-

not a party in interest in the suit, the right to waive is nevertheless his, and not that of the party.[46] As a general rule, however, the right of a patient to waive the statutory protection against disclosure by his physician of information acquired in attending him in his professional capacity may be exercised by those representing him after death, for the protection of interests claimed by them under him.[47] And under this rule, previous to the admission of a will to probate, the heirs at law of a deceased person are his only representatives entitled to waive.[48] And the words "personal representatives" in a statute prohibiting a waiver of the privilege of preventing a physician from disclosing professional communications except by personal representatives apply only to executors and administrators, and do not include the widow of the deceased.[49] But under statutory provisions prohibiting evidence as to confidential information acquired by a physician, without the consent of his patient, the right to waive is confined to the patient alone; and when he is dead, the matter is forever closed, and the privilege cannot be waived by his legal representative.[50] And this rule applies to probate proceedings, as well as to others, so as to prevent a waiver of privilege by an executor or administrator of a deceased patient.[51] But an attorney may waive for his

not refuse to testify. *Zimmer* v. *Third Ave. R. Co.* 36 App. Div. 265, 55 N. Y. Supp. 308.

[46]*Territory* v. *Corbett*, 3 Mont. 50.

[47]*Fraser* v. *Jennison*, 42 Mich. 206, 3 N. W. 882; *Masonic Mut. Ben. Asso.* v. *Beck*, 77 Ind. 203, 40 Am. Rep. 295; *Gurley* v. *Park*, 135 Ind. 440, 35 N. E. 279.

[48]*Staunton* v. *Parker*, 19 Hun, 55.

[49]*Beil* v. *Supreme Lodge, K. of H.* 80 App. Div. 609, 80 N. Y. Supp. 751.

An administrator with the will annexed, of the estate of a deceased person, is the representative of the testator while seeking to maintain his will, and has the right as such representative to call the physician who attended the testator in his last illness, to prove the condition of his mind at the time the will was executed. *Morris* v. *Morris*, 119 Ind. 341, 21 N. E. 918.

[50]*Harrison* v. *Sutter Street R. Co.* 116 Cal. 156, 47 Pac. 1019; *Re Flint*, 100 Cal. 391, 34 Pac. 863; *Westover* v. *Ætna L. Ins. Co.* 99 N. Y. 56, 52 Am. Rep. 1, 1 N. E. 104; *Loder* v. *Whelpley*, 111 N. Y. 239, 18 N. E. 874; *Butler* v. *Manhattan R. Co.* 3 Misc. 453, 23 N. Y. Supp. 163; *Ferguson* v. *Massachusetts Mut. L. Ins. Co.* 32 Hun, 306.

A waiver in an insurance policy by an insured person of his privilege to suppress confidential information of a professional character is personal, and cannot operate beyond him, and does not warrant the admission of the evidence of the physician of an aunt of the insured, as to the cause of her death, and as to whether she suffered from a particular disease. *Davis* v. *Supreme Lodge, K. of H.* 35 App. Div. 354, 54 N. Y. Supp. 1023, Affirmed in 165 N. Y. 159, 58 N. E. 891.

[51]*Loder* v. *Whelpley*, 111 N. Y. 239, 18 N. E. 874; *Westover* v. *Ætna L. Ins. Co.* 99 N. Y. 56, 52 Am. Rep. 1, 1 N. E. 104.

But the New York statute to this effect has been amended so as to provide that a physician or surgeon may disclose any information as to the mental or physical condition of a patient who is deceased, except confidential communications, and such facts as would tend to disgrace his memory, where the privilege has been expressly waived by personal representatives of the deceased; or, if the validity of the last will and testament of such deceased patient is in question, by the executor or executors named in his will, or the surviving husband, widow, or any heir at law, or any of the next of kin of such deceased patient, or any other party in inter-

client;[52] and the parents of an infant patient may waive for him as his natural guardians,[53] though the minor himself is not competent to do so.[54]

577. What may be waived.—As a general rule the right to waive a privilege is as broad as the privilege; and any privilege that can be claimed may be waived by the party entitled to it. Some of the statutes, however, expressly provide for a waiver except in case of confidential communications, and in case the facts are such as would tend to disgrace the patient or his memory. This exception apparently applies to representatives only, and not to the patient himself.[55] And an admission made by a person to a physician that he had attempted suicide would tend to disgrace his memory, and is not included within such an exception to a statute permitting waiver.[56]

578. What acts amount to a waiver.—A patient, being at liberty to waive the privilege which the law affords him to prevent the disclosure of professional information acquired by his physician, is at liberty to do so by provision in a contract during his lifetime, which will thereafter be binding upon all who claim under the contract, whether it be the patient himself or his representatives after his death.[57] And by

est; and the purpose of the amendment is to open the door more widely to the introduction of the evidence of medical attendants of a deceased patient when the validity of the will is in question; and the right of the waiver is extended to others having the relations to the deceased mentioned in the amendment, and to those having the legal relations of parties in interest. *Re Murphy*, 85 Hun, 575, 33 N. Y. Supp. 198.

[52]*Alberti* v. *New York, L. E. & W. R. Co.* 118 N. Y. 77, 6 L. R. A. 765, 23 N. E. 35.

[53]*Corey* v. *Bolton*, 31 Misc. 138, 63 N. Y. Supp. 915.

[54]*Corey* v. *Bolton*, 31 Misc. 138, 63 N. Y. Supp. 915, Affirming 30 Misc. 836, 61 N. Y. Supp. 517.

[55]*Holden* v. *Metropolitan L. Ins. Co.* 165 N. Y. 13, 58 N. E. 771, Reversing 11 App. Div. 426, 42 N. Y. Supp. 310.

[56]*Meyer* v. *Supreme Lodge, K. of P.* 82 App. Div. 359, 81 N. Y. Supp. 813.

[57]*Adreveno* v. *Mutual Reserve Fund Life Asso.* 34 Fed. 870; *Keller* v. *Home L. Ins. Co.* 95 Mo. App. 627, 69 S. W. 612; *Foley* v. *Royal Arcanum*, 151 N. Y. 196, 56 Am. St. Rep. 621, 45 N. E. 456; *Proppe* v. *Metropolitan L. Ins. Co.* 13 Misc. 266, 34 N. Y. Supp. 172; *Meyer* v. *Supreme Lodge, K. of P.* (N. Y.) 64 L. R. A. 839, 70 N. E. 111.

But a reference in an application for insurance to the family physician of the plaintiff, giving his name and residence, is not a waiver of the right of the plaintiff to prevent such physician from testifying as to confidential professional information where there was nothing else to indicate the alleged consent. *Masonic Mut. Ben. Asso.* v. *Beck*, 77 Ind. 203, 40 Am. Rep. 295; *Edington* v. *Mutual L. Ins. Co.* 5 Hun, 1.

Nor is offering in evidence the application for insurance containing a waiver of the provisions of the statute. *Meyer* v. *Supreme Lodge, K. of P.* 82 App. Div. 359, 81 N. Y. Supp. 813.

And statements in proofs of death furnished by a claimant under a certificate of insurance are a waiver of the privilege of preventing the disclosure of professional information by a physician only in so far as such statements refer to the subject-matter claimed to be privileged. *Briesenmeister* v. *Supreme Lodge, K. of P.* 81 Mich. 525, 45 N. W. 977.

And unnecessary statements made by the physician of an insured person as to previous ailments of the insured, which are privileged communications, are not rendered admissible to show that the answers made to certain questions in the application for insurance

making an attending physician a subscribing witness to a will, a patient waives his privilege so far as to permit the physician to testify in a will contest with reference to his physical or mental condition.[58] So, a patient waives the privilege of suppressing the testimony of a physician or surgeon as to information acquired while attending him in a professional capacity, by calling the physician as a witness to testify as to the information thus acquired.[59] And where two physicians act jointly and together, a waiver by the patient of the right to exclude the testimony of one of the physicians, by calling him to testify, effects a waiver as to the other also.[60] And the act of a patient in minutely detailing, either personally or by witnesses, all the acts and circumstances taking place and occurring at the time the medical

were false by the fact that they were made in the proofs of death. *Dreier* v. *Continental L. Ins. Co.* 24 Fed. 670.

And an amendment to a statute providing for the prohibition of the disclosure of medical information received in a professional capacity, providing for an express waiver of the privilege as to any information except confidential communications, and such facts as would tend to disgrace the memory of the patient, upon trial or examination, by the personal representatives of the deceased patient, permits no one except the personal representatives of a deceased patient to waive such privilege; and it can be waived by them only upon the trial or examination where the evidence is offered or received; and a stipulation of waiver in an insurance policy is not binding upon the representatives of the insured thereunder. *Holden* v. *Metropolitan L. Ins. Co.* 165 N. Y. 13, 58 N. E. 771, Reversing 11 App. Div. 426, 42 N. Y. Supp. 310.

[58]*Re Mullin,* 110 Cal. 252, 42 Pac. 645.

And a physician who had been made a subscribing witness to the will of his patient may properly be cross-examined in a proceeding for the probate, both as to his qualifications as an alienist and as to the character of the patient's infirmities. *Ibid.*

But the fact that a physician prepared a will for his patient, and under the patient's direction, does not affect his incompetency to disclose professional communications. *Re Nelson,* 132 Cal. 182, 64 Pac. 294.

[59]*Carrington* v. *St. Louis,* 89 Mo. 208, 58 Am. Rep. 108, 1 S. W. 240; *Blair* v. *Chicago & A. R. Co.* 89 Mo. 383, 1 S. W. 350; *Squires* v. *Chillicothe,* 89 Mo. 226, 1 S. W. 23; *Lissak* v. *Crocker Estate Co.* 119 Cal. 442, 51 Pac. 688; *Denning* v. *Butcher,* 91 Iowa, 425, 59 N. W. 69; *Morris* v. *New York, O. & W. R. Co.* 148 N. Y. 88, 51 Am. St. Rep. 675, 42 N. E. 410; *Holcomb* v. *Harris,* 166 N. Y. 257, 59 N. E. 820. And see *People* v. *Schuyler,* 106 N. Y. 298, 12 N. E. 783.

And this is so though the information was brought out by the patient by cross-examination, the physician having been called by the other side. *Sovereign Camp, W. of W.* v. *Grandon,* 64 Neb. 39, 89 N. W. 448; *Hoyt* v. *Hoyt,* 9 N. Y. S. R. 731, Affirmed in 112 N. Y. 493, 20 N. E. 402.

And where the plaintiff in an action for a personal injury alleged to have caused a miscarriage calls her physician, waiving privilege, and he fully discloses her physical condition, prescriptions made by the physician for a person with a name similar to that of the plaintiff, tending to show that such person had a disease which might have produced a miscarriage, are admissible upon behalf of the defendant, where there was evidence tending to identify the plaintiff as the same person who was treated for that disease by other physicians. *Deutschmann* v. *Third Ave. R. Co.* 87 App. Div. 505, 84 N. Y. Supp. 887.

But a notice to the defendant by the plaintiff in an action, to produce a letter written by the plaintiff's physician to the defendant, is not a waiver of privilege which will justify the admission of evidence by the physician as to privileged communications made by his patient. *Phillips* v. *United States Benev. Soc.* 120 Mich. 142, 79 N. W. 1.

[60]*Morris* v. *New York, O. & W. R. Co.* 148 N. Y. 88, 51 Am. St. Rep. 675, 42 N. E. 410.

services were rendered, is a waiver of the right to prevent a physician from testifying to any matter occurring at that time.[61]

The act of a person who had several physicians at different times, however, in calling one of them and waiving his privilege as to him, does not waive it with reference to the others so as to warrant his opponent in calling them for the purpose of disclosure of information obtained in their professional capacity.[62] And mere proof of the employment of a physician, or of the occasion for such employment, does not open his mouth as to information he acquired in such employment;[63] and the same rule applies to the acts of the patient in telling the character and results of his injuries.[64] Nor is the mere act of bringing an action which puts a person's physical condition in issue a waiver which will render the testimony of such person's physician ad-

[61]*Lane* v. *Boicourt*, 128 Ind. 420, 25 Am. St. Rep. 442, 27 N. E. 1111; *Highfill* v. *Missouri P. R. Co.* 93 Mo. App. 219; *Webb* v. *Metropolitan Street R. Co.* 89 Mo. App. 604; *Rauh* v. *Verien*, 29 App. Div. 483, 61 N. Y. Supp. 985; *Lawson* v. *Morning Journal Asso.* 32 App. Div. 71, 52 N. Y. Supp. 484; *Treanor* v. *Manhattan R. Co.* 28 Abb. N. C. 47, 16 N. Y. Supp. 536. *Contra*, *Green* v. *Nebagamain*, 113 Wis. 508, 89 N. W. 520.

But the act of a married woman in giving evidence in an action for malpractice against her physician is not a waiver of her privilege to prevent the disclosure of confidential information by the physician, where the action was brought by her husband alone, and there is nothing to show that she voluntarily offered herself as a witness. *Cramer* v. *Hurt*, 154 Mo. 112, 77 Am. St. Rep. 752, 55 S. W. 258.

And answering questions on cross-examination as to the privileged matter does not waive the witness's right to object on the ground of privilege to his physician's answering questions as to professional communications. *Burgess* v. *Sims Drug Co.* 114 Iowa, 275, 54 L. R. A. 364, 89 Am. St. Rep. 359, 86 N. W. 307.

And the act of a person suffering from a disease of a rare and interesting character, of permitting himself to be exhibited before a society of physicians at a public meeting, and permitting the publication by a physician of a description of the disease in a medical journal, is not a waiver of his privilege to prevent the disclosure by the physician of confidential communications made to him to enable him to treat the disease. *Scher* v. *Metropolitan Street R. Co.* 71 App. Div. 28, 75 N. Y. Supp. 625.

[62]*Penn Mut. L. Ins. Co.* v. *Wiler*, 100 Ind. 92, 50 Am. Rep. 769; *Baxter* v. *Cedar Rapids*, 103 Iowa, 599, 72 N. W. 790; *Cooley* v. *Foltz*, 85 Mich. 47, 48 N. W. 176; *Dotton* v. *Albion*, 57 Mich. 575, 24 N. W. 786; *Mellor* v. *Missouri P. R. Co.* 105 Mo. 455, 10 L. R. A. 36, 16 S. W. 849; *Barker* v. *Cunard S. S. Co.* 91 Hun, 495, 36 N. Y. Supp. 256; *Duggan* v. *Phelps*, 82 App. Div. 509, 81 N. Y. Supp. 916; *Record* v. *Saratoga Springs*, 46 Hun, 448, 12 N. Y. S. R. 395; *Hope* v. *Troy & L. R. Co.* 40 Hun, 438; *Hennessy* v. *Kelley*, 55 App. Div. 449, 66 N. Y. Supp. 871.

And that the defendant in an action for a personal injury sent its doctor after the accident to the plaintiff to look after its interests, and incidentally to attend to the wounds of the plaintiff, and that it put this doctor upon the stand and examined him fully in relation to the injuries, does not show a waiver by the plaintiff of the privilege of silencing other physicians who attended him professionally. *Jones* v. *Brooklyn, B. & W. E. R. Co.* 21 N. Y. S. R. 169, 3 N. Y. Supp. 253.

[63]*Williams* v. *Johnson*, 112 Ind. 273, 13 N. E. 872; *Jones* v. *Brooklyn, B. & W. E. R. Co.* 21 N. Y. S. R. 169, 3 N. Y. Supp. 253; *Holloway* v. *Kansas City* (Mo.) 82 S. W. 89.

[64]*Fox* v. *Union Turnp. Co.* 59 App. Div. 363, 69 N. Y. Supp. 551; *Dunkle* v. *McAllister*, 70 App. Div. 273, 74 N. Y. Supp. 902; *Holloway* v. *Kansas City* (Mo.) 82 S. W. 89.

missible as to such condition.[65] And a waiver is not effected by the giving of false testimony, to contradict which a physician's testimony is needed;[66] though a patient suing a physician for alleged malpractice in the treatment of an injury waives the privilege which protects him from disclosure by the physician of confidential communications as to all matters connected with the treatment of the injury in question.[67]

So, it seems to be well settled that the rule of evidence which excludes communications between physician and patient must be invoked by objecting at the time the evidence is given; and that where the evidence has been received without objection, the privilege is waived;[68] but there are cases in which the courts have refused to act upon such evidence, though there is nothing to show that any objection was made.[69]

[65] *Butler* v. *Manhattan R. Co.* 3 Misc. 453, 23 N. Y. Supp. 163; *Jones* v. *Brooklyn, B. & W. E. R. Co.* 21 N. Y. S. R. 169, 3 N. Y. Supp. 253; *Warsaw* v. *Fisher*, 24 Ind. App. 46, 55 N. E. 42.

And the interposition of a general denial in an action by a physician against a patient for recovery for medical services rendered is not a waiver of the privilege of the patient to prevent the disclosure by the physician of confidential communications. *Van Allen* v. *Gordon*, 83 Hun, 379, 31 N. Y. Supp. 907.

But parents of a child, who institute criminal proceedings against a person for committing rape upon the child, and who are the principal witnesses against him, testifying to the nature of the injury and the ailment for which a physician prescribed, must be deemed to have waived the protection which the law gives to information acquired by a physician in attending the child. *State* v. *Depoister*, 21 Nev. 101, 25 Pac. 1000.

[66] *McConnell* v. *Osage*, 80 Iowa, 293, 8 L. R. A. 778, 45 N. W. 550; *Finnegan* v. *Sioux City*, 112 Iowa, 232, 83 N. W. 907.

[67] *Becknell* v. *Hosier*, 10 Ind. App. 5, 37 N. E. 580; *Nave* v. *Baird*, 12 Ind. 318; *Cramer* v. *Hurt*, 154 Mo. 112, 77 Am. St. Rep. 752, 55 S. W. 258.

But it is not a waiver where the action is brought by the patient's husband; since the privilege is that of the wife, and cannot be waived by the husband. *Cramer* v. *Hurt*, 154 Mo. 112, 77 Am. St. Rep. 752, 55 S. W. 258.

And physicians called upon by the plaintiff in an action for malpractice, for treatment and services after the treatment and services of the defendant were at an end are within the rule prohibiting physicians to testify as to confidential information,—especially where it does not appear that the defendant was present, or had any knowledge of her purpose to consult them. *Aspy* v. *Botkins*, 160 Ind. 170, 66 N. E. 462.

[68] *Lissak* v. *Crocker Estate Co.* 119 Cal. 442, 51 Pac. 688; *Wheelock* v. *Godfrey*, 100 Cal. 578, 35 Pac. 317; *Briesemeister* v. *Supreme Lodge, K. of P.* 81 Mich. 525, 45 N. W. 977.

But an objection to a deposition by a physician as to the mental condition of his patient, that it was privileged and incompetent, goes to the evidence, and not to the competency of the witness to testify at all, and is in apt time when taken at the trial, notwithstanding a statute providing that no exceptions to depositions other than for incompetency or irrelevancy can be regarded unless made by motion before the case is reached for trial. *Winters* v. *Winters*, 102 Iowa, 53, 63 Am. St. Rep. 428, 71 N. W. 184.

[69] In *Hanford* v. *Hanford*, 3 Edw. Ch. 468, it was held that a divorce for adultery will not be granted upon the testimony of a physician disclosing information which he acquired in the course of his professional employment, such testimony being prohibited by statute.

And *People* v. *Sellick*, 4 N. Y. Crim. Rep. 329, holds that where an indictment is based upon testimony of a physician who obtains his information in an abortion case from professional examination and employment by the defendant, the indictment will be quashed.

V. Compensation of physicians as witnesses.

579. For ordinary testimony.—Professional witnesses, such as physicians and surgeons, in the discharge of their duty as good citizens, are, like other people, compellable to attend court in obedience to process, and to testify as to what they may know, for the same statutory fees as other witnesses.[70] As to facts within their knowledge they stand upon an equality with other witnesses.[71] And this is the rule without reference to whether they would be entitled to extra compensation for testifying to an opinion founded upon special study or experience.[72] But a physician meets the requirements of a subpœna within this rule as an ordinary witness, where he appears in court, and gives impromptu answers to such questions as may be put to him; and he cannot be required, as such, to examine the case, and use his skill and knowledge, or consider the testimony given so as to form an opinion.[73] And a physician employed professionally to attend an injured person, who, in the ordinary practice of his profession, acquires knowledge of the facts as to the nature and extent of his injuries, who is called upon to testify as to such nature and extent, and as to their probable effect, does not testify as an expert so as to be entitled to extra compensation as a witness;[74] and the same rule applies to testimony as to value of professional services; that being a question of fact, and not of science.[75]

580. Rule denying additional pay for opinion.—The rule adopted by a number of the states, probably the majority, in which the subject is not provided for by statute, is that the duty of a person to give evi-

[70] *Larimer County* v. *Lee*, 3 Colo. App. 177, 32 Pac. 841; *Walker* v. *Cook*, 33 Ill. App. 561.

[71] *Buchman* v. *State*, 59 Ind. 1, 26 Am. Rep. 75.

And a physician called upon as a witness to testify with reference to a post-mortem examination made by him is entitled to no compensation so far as the traveling and giving testimony in obedience to the subpœna are concerned, beyond that of an ordinary witness. *Gaston* v. *Marion County*, 3 Ind. 497.

[72] *Snyder* v. *Iowa City*, 40 Iowa, 646.

And a physician or surgeon cannot sustain a claim for larger compensation as a witness than an ordinary man would be entitled to for the same services, upon the ground alone that as an expert in his profession his time is more valuable than that of the ordinary man. *Chicago & N. W. R. Co.* v. *Friend*, 86 Ill. App. 157; *Dixon* v. *People*, 168 Ill. 179, 39 L. R. A. 116, 48 N. E. 108.

[73] *People* v. *Montgomery*, 13 Abb. Pr. N. S. 207; *St. Francis County* v. *Cummings*, 55 Ark. 419, 18 S. W. 461; *Larimer County* v. *Lee*, 3 Colo. App. 177, 32 Pac. 841; *Summers* v. *State*, 5 Tex. App. 374, 32 Am. Rep. 573.

[74] *LeMere* v. *McHale*, 30 Minn. 410, 15 N. W. 682.

And a physician called as a witness, who states the condition of a patient whom he visited profesionally, without objection, cannot then refuse to give his opinion as to the cause of the symptoms he described unless a professional fee is paid or secured to him, since the opinion asked for is pertinent to the subject about which he voluntarily testified. *Wright* v. *People*, 112 Ill. 540.

[75] *Walker* v. *Cook*, 33 Ill. App. 561.

And he cannot recover from the person in whose behalf he was subpœnaed, on a promise to pay him more than the required fee allowed by law. *Ibid.*

dence material to the issues in a pending case, devolving upon him as a citizen in view of the protection which he receives from the law of the country in the matter of his personal liberty and the protection of his property, devolves upon the physician or surgeon who is required to testify as an expert, as well as upon the ordinary witness testifying to facts within his knowledge.[76] Within this rule an expert witness, called upon to answer a hypothetical question involving a special knowledge peculiar to his calling, is merely required to do what every good citizen is required to do in behalf of public peace and good order, and the promotion of the public good.[77] And a medical witness cannot decline to testify upon the ground that his knowledge was obtained by professional skill, and from the deductions of experience which are his own property, and for which the county refuses to pay.[78] This rule is alike applicable whether the action is criminal or civil;[79] and a physician is punishable under it as for contempt, for refusing to testify as an expert without being paid for his testimony as for a professional opinion.[80] And the court cannot, in the absence of statutory authority, bind the county by allowing compensation in excess of the statutory fees of ordinary witnesses.[81]

581. Rule allowing additional pay for opinion.—The rule adopted in Indiana and some of the other jurisdictions is that the skill and professional experience of a physician or surgeon are so far his individual capital and property that he cannot be compelled to confer them gratuitously upon anyone; and that neither the public nor any private person has a right to extort services from him in the line of his profession without adequate compensation; and that he cannot be compelled to give a professional opinion as a witness, without compensation in addition to the ordinary fees of witnesses.[82] Within this

[76]*Dixon* v. *People*, 168 Ill. 179, 39 L. R. A. 116, 48 N. E. 108; *Ex parte Dement*, 53 Ala. 389, 25 Am. Rep. 611; *Flinn* v. *Prairie County*, 60 Ark. 204, 27 L. R. A. 669, 46 Am. St. Rep. 168, 29 S. W. 459; *Clark County* v. *Kerstan*, 60 Ark. 508, 30 S. W. 1046; *Larimer County* v. *Lee*, 3 Colo. App. 177, 32 Pac. 841; *Gaston* v. *Marion County*, 3 Ind. 497; *Allegheny County* v. *Watts*, 3 Pa. St. 462; *Summers* v. *State*, 5 Tex. App. 374, 32 Am. Rep. 573.

[77]*Dixon* v. *People*, 168 Ill. 179, 39 L. R. A. 116, 48 N. E. 108.

[78]*Summers* v. *State*, 5 Tex. App. 367, 32 Am. Rep. 573; *State* v. *Teipner*, 36 Minn. 535, 32 N. W. 678.

The property of an expert witness is not taken without just compensation by requiring him to give his opinion as an expert without other compensation than ordinary witness fees. *Dixon* v. *People*, 168 Ill. 179, 39 L. R. A. 116, 48 N. E. 108.

[79]*Ibid.*

[80]*Ex parte Dement*, 53 Ala. 389, 25 Am. Rep. 611; *Dixon* v. *People*, 168 Ill. 179, 39 L. R. A. 116, 48 N. E. 108; *Com.* v. *Higgins*, 5 Kulp, 269.

[81]*Larimer County* v. *Lee*, 3 Colo. App. 177, 32 Pac. 841.

So, a medical witness has no right to recover on the *quantum meruit* for services rendered as such under the requirements of the law for such services; he is limited to the fee for compensation fixed by statute. *Smith* v. *McLaughlin*, 77 Ill. 596.

[82]*Buchman* v. *State*, 59 Ind. 1, 26 Am. Rep. 75; *Dills* v. *State*, 59 Ind. 15;

rule, though a physician called as a witness is bound as a matter of public duty to speak as to facts which he saw or knew, where he is called upon to depose to a matter of opinion depending upon his skill, he is under no such obligation, and has a right, before being summoned, to demand from the party calling him compensation for his loss of time.[83] And he cannot be punished as for contempt of court for refusal to testify as an expert unless he is first compensated;[84] and there is sufficient consideration to support a contract to pay an expert witness a reasonable compensation in addition to the statutory fees, where he was engaged in advance of the trial to testify as such.[85]

At common law additional compensation was given to physicians and attorneys by way of an allowance for loss of time while serving as scientific witnesses, regard being had to the distance traveled, and the average rate of fees earned by them.[86] And the table of fees framed by the common-law judges under 15 & 16 Vict. chap. 76, allowed different sums to different witnesses according to their vocation and station in life.[87] And in the English courts of chancery the practice has been to allow the expenses of procuring expert and scien-

United States v. *Howe*, 12 Cent. L. J. 193.

And a physician called upon to make a post-mortem examination is entitled to compensation in addition to that paid ordinary witnesses, for the expenditure of labor and skill required in the examination. *Gaston* v. *Marion County*, 3 Ind. 497.

[83] *Webb* v. *Page*, 1 Car. & K. 23; *United States* v. *Howe*, 12 Cent. L. J. 193; *Dills* v. *State*, 59 Ind. 15.

A physician or surgeon when giving his opinion in the court does not occupy the position of a witness testifying to facts, and is not embraced within the term "witness" as used in § 13 of the Indiana Bill of Rights, providing that in all criminal prosecutions the accused shall have the right to compulsory process for obtaining witnesses in his favor. *Buchman* v. *State*, 59 Ind. 1, 26 Am. Rep. 75.

[84] *United States* v. *Howe*, 12 Cent. L. J. 193; *Buchman* v. *State*, 59 Ind. 1, 26 Am. Rep. 75; *Dills* v. *State*, 59 Ind. 15.

[85] *Barrus* v. *Phaneuf*, 166 Mass. 123, 32 L. R. A. 619, 44 N. E. 141.

And an expert witness does not waive his right to extra compensation to which he is entitled by contract, by subsequently receiving statutory fees as a witness from the party who engaged him, and by testifying without making any claim for extra compensation, even though he is not asked questions which call for his opinion as an expert. *Ibid.*

But an agreement by which a person qualified to testify as an expert is to be paid a stipulated sum for giving his testimony, on condition that it enables the other contracting party to win the suit, besides his traveling expenses and the usual *per diem* allowance of an expert, is illegal and wholly void; and the expert cannot recover even his traveling expenses and fees. *Pollak* v. *Gregory*, 9 Bosw. 116.

[86] See *Severn* v. *Olive*, 3 Brod. & B. 72, 6 J. B. Moore, 235, 23 Revised Rep. 365; *Lowry* v. *Doubleday*, 5 Maule & S. 159 note; *Moore* v. *Adam*, 5 Maule & S. 156; *Lopes* v. *DeTastet*, 7 J. B. Moore, 120, 3 Brod. & B. 292; *Clark* v. *Gill*, 1 Kay & J. 19, 23 L. J. Ch. N. S. 711, 2 Week. Rep. 652, 2 Eq. Rep. 1108; *Parkinson* v. *Atkinson*, 31 L. J. C. P. N. S. 199.

But a surgeon could only be allowed the usual fees for attending at the trial of an indictment for manslaughter, and not his fees for opening the body by order of the coroner. *Rex* v. *Taylor*, 5 Car. & P. 301.

[87] *Nokes* v. *Gibbon*, 26 L. J. Ch. N. S. 208, 3 Jur. N. S. 282, 5 Week. Rep. 216. And see *Clark* v. *Gill*, 1 Kay & J. 19, 23 L. J. Ch. N. S. 711, 2 Week. Rep. 652, 2 Eq. Rep. 1108.

tific witnesses, and qualifying them to give evidence, in taxing costs as between party and party;[88] the amount of the allowance resting in the discretion of the master.[89] And the statutes of a number of the states provide for the allowance of extra compensation to expert witnesses, the amount to be determined by the court.[90] But these statutes apply only when the witness is called upon as a professional person for the purpose of testifying to an opinion founded on special study and experience.[91] And under them a witness cannot refuse to answer on the ground that his answer will constitute expert evidence, since they contemplate allowance afterwards made;[92] and the liability therefor seems to rest entirely with the party calling the witness; it is not taxable as costs.[93] The district or prosecuting attorney is authorized in some of the states to require the attendance of skilled witnesses in criminal actions, in proper cases, for a special compensation,[94] and to bind the county by agreement therefor, the test of the

[88] *Mackley* v. *Chillingworth*, 46 L. J. C. P. N. S. 484, L. R. 2 C. P. Div. 273, 36 L. T. N. S. 514, 25 Week. Rep. 650; *May* v. *Selby*, 4 Mann. & G. 142, 4 Scott, N. R. 727, 1 Dowl. N. S. 708, 6 Jur. 52, 11 L. J. C. P. N. S. 223.

[89] *Mackley* v. *Chillingworth*, 46 L. J. C. P. N. S. 484, L. R. 2 C. P. Div. 273, 36 L. T. N. S. 514, 25 Week. Rep. 650; *Turnbull* v. *Janson*, L. R. 3 C. P. Div. 264, 47 L. J. C. P. N. S. 384, 26 Week. Rep. 815.

[90] See *Snyder* v. *Iowa* City, 40 Iowa, 646; *State ex rel. Dardenne* v. *Cole*, 33 La. Ann. 1356; *LeMere* v. *McHale*, 30 Minn. 410, 15 N. W. 682; *State* v. *Dollar*, 66 N. C. 626.

In Minnesota the discretion of the court will not be revised on appeal, unless in case of gross abuse. *LeMere* v. *McHale*, 30 Minn. 410, 15 N. W. 682.

And the compensation of witnesses in a criminal case who testified as experts may be fixed by the trial judge in an *Ex parte* proceeding under Louisiana statute. *State ex rel. Dardenne* v. *Cole*, 33 La. Ann. 1356.

So, an allowance may be made for a reasonable number of expert witnesses as to the extent of gold deposits, upon a proceeding to condemn gold, brought by the United States, under a statute providing that the attendance fees of witnesses should be paid by the United States as an expense incident to the condemnation. *United States ex rel. Rock Creek Park* v. *Cooper*, 21 D. C. 491, 21 Wash. L. Rep. 182.

[91] *Snyder* v. *Iowa City*, 40 Iowa, 646; *LeMere* v. *McHale*, 30 Minn. 410, 15 N. W. 682.

[92] *State* v. *Teipner*, 36 Minn. 535, 32 N. W. 678.

[93] See *The William Branfoot*, 3 C. C. A. 155, 8 U. S. App. 129, 52 Fed. 390; *Faulkner* v. *Hendy*, 79 Cal. 265, 21 Pac. 754; *Mark* v. *Buffalo*, 87 N. Y. 184.

[94] *People* v. *Montgomery*, 13 Abb. Pr. N. S. 207; *People ex rel. Bliss* v. *Cortland County*, 39 N. Y. S. R. 313, 15 N. Y. Supp. 748. And see *State ex rel. Dardenne* v. *Cole*, 33 La. Ann. 1356.

And the amount paid a physician called as an expert witness in such case, and the fact that the amount of compensation was not known to the defendant, could not, in the absence of anything to show bad faith, affect the regularity of the trial of a criminal case, though it might affect the credit of the witness with the jury. *People* v. *Montgomery*, 13 Abb. Pr. N. S. 207.

But a medical expert who attends a criminal trial, and testifies on behalf of the defendant, is not entitled to an allowance of additional compensation, under a statute providing that a prisoner is entitled to process to summon necessary witnesses at the expense of the commonwealth; and the expenses and fees of expert witnesses cannot be allowed without the approval of the attorney general, under one authorizing the allowance of accounts for services and expenses incident thereto, or one providing for the taxation of certain specific fees, including fees of witnesses; but a court may allow a reasonable compensation, approved by the attorney general, to experts. *Atty. Gen. Petitioner*, 104 Mass. 537.

right being the necessity of the case;[95] and payment may be compelled by mandamus.[96]

[95]*People ex rel. Bliss* v. *Cortland County*, 39 N. Y. S. R. 313, 15 N. Y. Supp. 748.

[96]*State ex rel. Dardenne* v. *Cole*, 33 La. Ann. 1356.

CHAPTER XXVIII.

INJURIES TO PHYSICIANS OR SURGEONS.

582. Personal or physical injuries.—The rules of law with reference to injuries to physicians or surgeons and to liability therefor are the same as those with relation to other persons in general, except as to injuries affecting either a physician's professional income or professional character. With reference to personal or physical injuries affecting a physician's professional income, his professional earnings do not form a basis of damages.[1] But the amount of the previous professional earnings of a physician is admissible in evidence, under an allegation of special damages, to aid in estimating the value of the time lost by him.[2] And the possibility of the recurrence of special emoluments in the shape of gifts received from patients by eminent physicians should be considered in making the estimate.[3] And the fact that the party causing the injury did not know that the party injured was a physician with a large income is of no effect.[4] Nor is a person suffering a personal injury precluded from recovering damages for the loss of business as a physician by the fact that he had no such degree from a medical institution as would enable him to maintain an action for professional services.[5] It has been held, however,

[1] *Logansport* v. *Justice*, 74 Ind. 378, 39 Am. Rep. 79.

[2] *Ibid.*; *Collins* v. *Dodge*, 37 Minn. 503, 35 N. W. 368; *Nebraska City* v. *Campbell*, 2 Black, 590, 17 L. ed. 271.

But it is improper in an action for personal injuries to a physician, on the question of damages suffered by him in his business, to permit another physician practising in another locality to testify as to what proportion of his practice was obstetrical cases, where there is no testimony to show the relative density of population of the two localities, or how they compared with each other. *St. Louis S. W. R. Co.* v. *Ball*, 28 Tex. Civ. App. 287, 66 S. W. 879.

[3] *Phillips* v. *London & S. W. R. Co.* L. R. 5 C. P. Div. 280, 42 L. T. N. S. 6, 44 J. P. 217, 49 L. J. C. P. N. S. 233.

[4] *Ibid.*

[5] *Holmes* v. *Halde*, 74 Me. 28, 43 Am. Rep. 567; *McNamara* v. *Clintonville*, 62 Wis. 207, 51 Am. Rep. 722, 22 N. W. 472; *Luck* v. *Ripon*, 52 Wis. 196, 8 N. W. 815. *Contra*, *Jacques* v. *Bridgeport Horse R. Co.* 41 Conn. 61, 19 Am. Rep. 483.

that the defendant is entitled to show that the physician's practice was an unlawful one, and his professional reputation in respect to it.[6] And professional earnings or a diminution thereof, due to a change of location necessitated by an exercise of the right of eminent domain, cannot be taken into consideration in estimating damages;[7] though a physician having an office in, and a practice extending throughout, a town in which land is taken for public purposes, is within the provision of a statute providing for compensation to any individual owning an established business on land within the town, which is injured by the taking.[8]

583. Defamation by charge of general incompetency.—The test by which to determine whether or not special damages must be alleged and proved, to establish a cause of action for defamation of a physician or surgeon in his business, is the question whether the words used were such as necessarily must, or naturally and presumably would, occasion pecuniary damage to the person of whom they were spoken.[9] Words spoken of a physician, injuriously affecting him in his profession, such as charges of general ignorance of medical science, and incompetency as a physician,[10] or that he was no doctor,[11] or that he had killed many patients,[12] are actionable *per se*. And it is action-

[6] *Jacques* v. *Bridgeport Horse R. Co.* 41 Conn. 61, 19 Am. Rep. 483. But see *McNamara* v. *Clintonville*, 62 Wis. 207, 51 Am. Rep. 722, 22 N. W. 472.

[7] See *Becker* v. *Philadelphia & R. Terminal R. Co.* 177 Pa. 252, 35 L. R. A. 585, 35 Atl. 617; *Philadelphia Ball Club* v. *Philadelphia*, 192 Pa. 632, 46 L. R. A. 724, 73 Am. St. Rep. 835, 44 Atl. 265.

[8] *Earle* v. *Com.* 180 Mass. 579, 57 L. R. A. 292, 63 N. E. 10.

[9] *Pratt* v. *Pioneer-Press Co.* 35 Minn. 251, 28 N. W. 708.

[10] *Swift* v. *Dickerman*, 31 Conn. 285; *Tarleton* v. *Lagarde*, 46 La. Ann. 1368, 26 L. R. A. 325, 49 Am. St. Rep. 353, 16 So. 180; *Cruikshank* v. *Gordon*, 118 N. Y. 178, 23 N. E. 457; *Cawdry* v. *Highley*, Cro. Car. 270.

And a medical society, acting without jurisdiction, is liable for a libel if it spreads upon its minutes a report of the expulsion of a member for alleged incompetency in his profession. *Fawcett* v. *Charles*, 13 Wend. 473.

But the publication of the minutes of a general council of medical education and registration, authorized to erase the names of medical practitioners from the register for infamous conduct in a professional respect, containing a report of their proceedings, and statements that the name of a specified practitioner had been removed from the register on that ground, and that in the opinion of the council he had been guilty of infamous conduct in a professional respect, is, if the report be accurate and published without malice, a privileged communication; and the medical practitioner cannot maintain an action of libel against the council in respect of the publication. *Allbutt* v. *General Council of Medical Education*, L. R. 23 Q. B. Div. 400, 58 L. J. Q. B. N. S. 606, 61 L. T. N. S. 585, 37 Week. Rep. 771, 54 J. P. 36.

[11] *Bergold* v. *Puchta*, 2 Thomp. & C. 532; *Cruikshank* v. *Gordon*, 48 Hun, 308, 1 N. Y. Supp. 443.

[12] *Depew* v. *Robinson*, 95 Ind. 109; *Carroll* v. *White*, 33 Barb. 615; *Tutty* v. *Alewin*, 11 Mod. 221; *Flower's Case*, Cro. Car. 211; *Southee* v. *Denny*, 1 Exch. 196, 17 L. J. Exch. N. S. 151.

So, to say that a midwife could not do her work without the help of others is actionable. *Gyles* v. *Bishop*, Freem. 278.

And so is it to say of a midwife that she is ignorant, and not a midwife, and

able to charge a physician with being a quack[13] or a quacksalver,[14] or an empiric or mountebank.[15] Likewise, words, though not used with reference to a physician's profession, may be actionable where they tend to hold him out to contempt.[16] But it is not actionable to state of an old school physician that he has met homeopathists in consultation,[17] or to call a physician a twopenny bleeder[18] or a drunkard[19] or an adulterer;[20] though a charge of incontinence in his professional relations might be.[21] If the word "malpractice" is used concerning a physician, the question is for the jury as to the meaning intended, and whether or not it was libelous.[22]

584. Defamation by charge of error in particular case.—If a charge against a physician with reference to a single or particular case shows such gross ignorance or negligence, and such a deficiency of skill and care, as could not fail to injure his reputation and deprive him of general confidence, it is actionable.[23] Such would be a charge of giv-

that she had caused injury and death. *Whitehead* v. *Founes*, Freem. 277; *Wharton* v. *Clover*, 2 Keble, 489.

[13]*White* v. *Carroll*, 42 N. Y. 161, 1 Am. Rep. 503; *Hargan* v. *Purdy*, 93 Ky. 424, 20 S. W. 432; *Elmergreen* v. *Horn*, 115 Wis. 385, 91 N. W. 973.

To call a physician a quack is in effect charging him with want of necessary knowledge and training; and it is just as actionable falsely to call a homeopathic physician a quack as to call an allopathic physician one. *White* v. *Carroll*, 42 N. Y. 161, 1 Am. Rep. 503.

And a publication referring to a physician as a practitioner, quoting the word "doctor," and calling attention to an endeavor on his part to correct a report deemed by him to be false, and saying that we do not look to a quack to set us right in the matter, must be deemed to refer to him as a quack doctor, and is libelous *per se*. *Elmergreen* v. *Horn*, 115 Wis. 385, 91 N. W. 973.

[14]Rolle, Abr. 54; *Allen* v. *Eaton*, 1 Viner, Abr. 450.

[15]*Goddart* v. *Haselfoot*, 1 Rolle, Abr. 54, 1 Viner, Abr. 451.

And a charge that a physician is dealing with one of the most fatal diseases known to mankind, for his own benefit, by exciting unduly and wantonly the fears of those to whom his publications are addressed, and then holding out to them a delusive hope of recovery by employing the writer, is actionable, if false. *Hunter* v. *Sharpe*, 4 Fost & F. 983, 15 L. T. N. S. 421, 30 J. P. 149.

[16]*Rider* v. *Rulison*, 74 Hun, 239, 26 N. Y. Supp. 234; *Sullings* v. *Shakespeare*, 46 Mich. 408, 41 Am. Rep. 166, 9 N. W. 451. And see *Ramadge* v. *Ryan*, 9 Bing. 333, 2 Moore & S. 421, 2 L. J. C. P. N. S. 7; *Wells* v. *Webber*, 2 Fost. & F. 715.

And testimony as to the medical standing of a physician is not irrelevant in an action brought by him for slander against a newspaper publisher, based upon the theory that the difference between the publication and the manuscript furnished was intentional, and designed to hold him up to public ridicule; since in such case injury to his medical character is a ground of complaint. *Sullings* v. *Shakespeare*, 46 Mich. 408, 41 Am. Rep. 166, 9 N. W. 451.

[17]*Clay* v. *Roberts*, 9 Jur. N. S. 580, 11 Week. Rep. 649, 8 L. T. N. S. 397.

[18]*Foster* v. *Small*, 3 Whart. 138.

[19]*Anonymous*, 1 Ohio, 83, note.

[20]*Ayre* v. *Craven*, 8 Ad. & El. 2, 4 Nev. & M. 220, 4 L. J. K. B. N. S. 35.

[21]*Martin* v. *Strong*, 5 Ad. & El. 532, 1 Nev. & P. 29, 2 Hurlst. & W. 336, 6 L. J. K. B. N. S. 48; *Dixon* v. *Smith*, 5 Hurlst. & N. 450, 29 L. J. Exch. N. S. 125; *Rice* v. *Cottrel*, 5 R. I. 340.

[22]*Rodgers* v. *Kline*, 56 Miss. 808, 31 Am. Rep. 389.

[23]*Sumner* v. *Utley*, 7 Conn. 257; *Gauvreau* v. *Superior Pub. Co.* 62 Wis. 403, 22 N. W. 726; *Pratt* v. *Pioneer Press Co.* 32 Minn. 217, 18 N. W. 836, 20 N. W. 87, 30 Minn. 41, 14 N. W. 62; *Secor* v. *Harris*, 18 Barb. 425; *Purdy* v. *Rochester Printing Co.* 26 Hun, 206, Reversed on other grounds, 96 N. Y. 372, 48 Am. Rep. 632.

ing to an infant teaspoonful doses of calomel,[24] or of allowing the decomposing body of a dead infant to remain in the room for days with its sick mother.[25] But words spoken of a physician only with reference to a particular case may be so qualified by the fact that the most eminent physicians are liable to make mistakes, that, unless they have an import and meaning which, in effect, reach beyond the particular case and its treatment, and go to affect the physician's professional character, learning, or skill, the law implies no damages; and special damages are necessary to support the action.[26] And it is not actionable *per se* to state that a doctor amputated an arm to get his name up,[27] or to call his treatment of a particular case rascally;[28] though it is so to state that a doctor's treatment caused the patient's death.[29]

585. Effect of failure to obtain license.—A person not licensed to practise medicine cannot maintain an action for libel or slander for charging him with malpractice, unless he is charged with having committed some offense involving moral turpitude, or subjecting him to an infamous punishment.[30] And it cannot be libel or slander to charge a person with being no doctor or a quack, where he has no diploma to entitle him to be called a doctor, and is not entitled to practise medicine.[31] And the burden rests with the plaintiff in an action for damages for denying his right to be called a doctor, to show that he is entitled to practise as a physician.[32] And the evidence must show

[24]*Secor* v. *Harris*, 18 Barb. 425.

So, in *Collier* v. *Simpson*, 5 Car. & P. 73, a recovery was had for a charge that a physician had prescribed improper medicine for a child.

[25]*Pratt* v. *Pioneer-Press Co.* 35 Minn. 251, 28 N. W. 708.

[26]*Lynde* v. *Johnson*, 39 Hun, 12; *Rodgers* v. *Kline*, 56 Miss. 808, 31 Am. Rep. 389.

In *Gunning* v. *Appleton*, 58 How. Pr. 475, it was said that a charge of professional ignorance or incapacity in a particular case is not actionable.

[27]*Lynde* v. *Johnson*, 39 Hun, 12.

In *Hitcham* v. *Cason*, Hetley, 175, it was said not to be actionable to say that a surgeon had poisoned the wound of his patient, for it might be to cure it; but in 1 Anderson, 268, it was said that it might be actionable to say that he poisoned the wound of his patient for gain of money.

[28]*Camp* v. *Martin*, 23 Conn. 86.

[29]*Johnson* v. *Robertson*, 8 Port (Ala.) 486; *Sumner* v. *Utley*, 7 Conn. 257; *Jones* v. *Diver*, 22 Ind. 184; *Foster* v. *Scripps*, 39 Mich. 376, 33 Am. Rep. 403; *Edsall* v. *Russell*, 4 Mann. & G. 1090, 5 Scott, N. R. 801, 12 L. J. C. P. N. S. 4, 6 Jur. 996; *Watson* v. *Vanderlash*, Hetley, 71.

In *Poe* v. *Mondford*, Cro. Eliz. pt. 2, p. 620, however, it was held that it is not actionable to say that a physician killed a patient with medicine, unless it was said that he knowingly and wilfully did it; but this case has frequently been questioned.

[30]*Marsh* v. *Davison*, 9 Paige, 580.

[31]*Hargan* v. *Purdy*, 93 Ky. 424, 20 S. W. 432; *Moises* v. *Thornton*, 8 T. R. 303, 3 Esp. 4; *Collins* v. *Carnegie*, 1 Ad. & El. 695, 3 Nev. & M. 703, 3 L. J. K. B. N. S. 196.

In *Long* v. *Chubb*, 5 Car. & P. 55, however, a verdict for the plaintiff was said to be authorized if the jury thought that the libel spoke of him as a medical practitioner, though he was not licensed as a physician; but they could not give such damages as they would a regular practitioner.

[32]*Collins* v. *Carnegie*, 1 Ad. & El. 695, 3 Nev. & M. 703, 3 L. J. K. B. N. S. 196.

not only that he held a diploma, or that he had practised, but that he had conformed to all legal requirements, and that he was actually entitled to practise.[33]

[33] *Ibid.; Moises* v. *Thornton*, 8 T. R. 303, 3 Esp. 4.

But the production of a sealed instrument purporting to be a diploma of a university conferring a degree; and proof that a person calling himself the university librarian had shown, as the university seal, a seal corresponding with the one on the instrument produced, the paper being on its face an act of the university conferring the degree; and also proof that, in the same room, the same person, with others calling themselves professors, had shown, as the books of the university, a book containing an entry agreeing with the paper,—is sufficient proof that he had received the degree of doctor of medicine. *Collins* v. *Carnegie*, 1 Ad. & El. 695, 3 Nev. & M. 703, 3 L. J. K. B. N. S. 196.

CHAPTER XXIX.

PHYSICIAN'S ACTS AS AFFECTING RIGHTS, DUTIES, AND LIABILITIES OF THIRD PERSONS.

586. Effect of obeying mistaken directions.—Where one person is injured by another, and the injured person employs a physician to treat his injuries, the party causing the injury is not relieved from responsibility in damages for the whole injury by the fact that it was enhanced by obeying mistaken directions of the physician, reasonable care having been exercised in his selection.[1] But where a person, injured by the negligence of another, acts upon an improper suggestion made by a physician, not in his employ, but in the employ of the person causing the injury, contrary to the directions of his own physician, he does so at his own risk, and cannot recover against the one who injured him for any enhancement of the injury thereby caused.[2] And the person causing the injury cannot be held liable on the theory that the physician was his agent.[3] It is competent, however, for the person injured to prove the directions given by his physician, and that he had obeyed them, for the purpose of rebutting any inference that his own negligence or imprudence had aggravated his injuries.[4]

[1] *Goshen* v. *England*, 119 Ind. 368, 5 L. R. A. 253, 21 N. E. 977; *Pullman Palace Car Co.* v. *Bluhm*, 109 Ill. 20, 50 Am. Rep. 601; *Stover* v. *Bluehill*, 51 Me. 439; *McGarrahan* v. *New York, N. H. & H. R. Co.* 171 Mass. 211, 50 N. E. 610; *Strudgeon* v. *Sand Beach*, 107 Mich. 496, 65 N. W. 616; *Caven* v. *Troy*, 15 App. Div. 163, 44 N. Y. Supp. 244; *Lyons* v. *Erie R. Co.* 57 N. Y. 489; *Sauter* v. *New York, C. & H. R. R. Co.* 66 N. Y. 50, 23 Am. Rep. 18; *St. Louis & S. F. R. Co.* v. *Doyle* (Tex. Civ. App.) 25 S. W. 461; *Selleck* v. *Janesville*, 104 Wis. 570, 47 L. R. A. 691, 76 Am. St. Rep. 892, 80 N. W. 944.

[2] *Pearl* v. *West End Street R. Co.* 176 Mass. 177, 49 L. R. A. 826, 79 Am. St. Rep. 302, 57 N. E. 339.

[3] *Ibid.*; *South Florida R. Co.* v. *Price*, 32 Fla. 46, 13 So. 638.

[4] *Louisville, N. A. & C. R. Co.* v. *Falvey*, 104 Ind. 409, 3 N. E. 389, 4 N. E. 908.

Evidence of an improper direction by a physician is competent in an action for a personal injury, not to cast upon the defendant any damage which his negligence did not occasion, but to show that the plaintiff acted in good faith, and used proper care to mitigate the damage which such negligence did occasion. *Lyons* v. *Erie R. Co.* 57 N. Y. 489.

587. Effect of failure to follow proper directions.—A person injured by the act or negligence of another, who employs a reputable physician to care for his injuries, but negligently fails to follow directions as to treatment of his injuries, and thereby aggravates his damages, cannot recover of the party causing the injury to the extent that the damages were thereby enhanced and increased.[5] But it cannot be said as a matter of law that a patient may not, without imputation of negligence which will prevent a recovery, depart from the directions of his physician; the question whether or not such departure constitutes negligence being one for the jury.[6] And one who receives an injury at the hands of another cannot be expected in every instance to know the most prudent thing for him to do; and he should not be held negligent because his sufferings have impelled him to an unfavorable course, unless it plainly appears that he knew it to be unfavorable.[7] And a negligent or unlawful act of an insane person, or one otherwise incompetent to understand or obey directions of a physician, will not be imputed to him as contributory negligence.[8] Subsequent negligence in disobeying directions of his physician, however, on the part of a person injured, does not bar a recovery against the person causing the injury; it merely reduces it to such damages as were caused by the original injury.[9] And one claiming that an injury has been enhanced by failure to follow instructions of a physician has the burden of proving it.[10]

[5] *Strudgeon* v. *Sand Beach*, 107 Mich. 496, 65 N. W. 616; *Goshen* v. *England*, 119 Ind. 368, 5 L. R. A. 253, 21 N. E. 977; *Schmidt* v. *Mitchell*, 84 Ill. 195, 25 Am. Rep. 446.

And the rule with reference to the degree of care required of a person injured by the negligence of another, in the employment of a physician and surgeon, and in procuring and submitting to proper medical treatment, is not changed or affected by the fact that the person injured was himself a physician and surgeon. *Boynton* v. *Somersworth*, 58 N. H. 321.

[6] *Sullivan* v. *Tioga R. Co.* 112 N. Y. 643, 8 Am. St. Rep. 793, 20 N. E. 569.

And the information which a surgeon may give to a patient concerning the nature of his malady is a circumstance which should be considered by the jury in determining the question whether the patient, in disobeying the instructions of the surgeon, was guilty of contributory negligence. *Geiselman* v. *Scott*, 25 Ohio St. 86.

[7] *Gulf, C. & S. F. R. Co.* v. *McMannewitz*, 70 Tex. 73, 8 S. W. 66.

In *Chamberlin* v. *Morgan*, 68 Pa. 168, it was held that evidence by a consulting physician, that, on examination of a girl whose arm was injured, in the presence of, and at the request of, her father, he offered to put her under the influence of an anesthetic, and attempt to reduce the fracture; and that it could then have been reduced; and that the father replied in her presence that so long as she was improving he would not have it disturbed,—is not admissible in an action brought by the girl, where the consulting physician had only been asked to examine her arm, and give his opinion about it; since that did not oblige the father to adopt his advice.

[8] *People ex rel. Norton* v. *New York Hospital*, 3 Abb. N. C. 229.

[9] *Goshen* v. *England*, 119 Ind. 368, 5 L. R. A. 253, 21 N. E. 977; *Keyes* v. *Cedar Falls*, 107 Iowa, 509, 78 N. W. 227.

[10] *Goshen* v. *England*, 119 Ind. 368, 5 L. R. A. 253, 21 N. E. 977. And see *Lawrence* v. *Housatonic R. Co.* 29 Conn. 390.

588. Medical services rendered as affecting damages.—The plaintiff in an action for a personal injury is entitled to recover against the person who caused the injury, if at all, for expenses of medical attendance made necessary by the injury, including medicine.[11] And bills of physicians for services are properly admitted in evidence in such an action as memoranda of the account charged, and of the amount the injured person has promised to pay; though he is required to prove the facts, and to show that the charges were reasonable, by other testimony.[12] And a physician or surgeon may properly be allowed to testify as to the value of his services, in an action by his patient for damages caused by a personal injury for which he attended him, against the person who caused the injury, for the purpose of determining the amount of damages suffered.[13] And whenever it is proper to prove the services of a physician or surgeon in such a case, the fair value thereof is the legal rule; and evidence of a custom among physicians and surgeons not to charge members of the profession for services rendered, and that the person injured was a physician, is incompetent and immaterial.[14] It is the reasonable value of the medical services, however, that is to be allowed, and not the amount charged or paid.[15] And the nature and extent of the liability for medical aid

[11] *M'Donald* v. *Illinois C. R. Co.* 88 Iowa, 345, 55 N. W. 102; *Montgomery Street R. Co.* v. *Mason*, 133 Ala. 508, 32 So. 261; *Omaha Street R. Co.* v. *Emminger*, 57 Neb. 240, 77 N. W. 675; *Gulf, C. & S. F. R. Co.* v. *Bell*, 24 Tex. Civ. App. 579, 58 S. W. 614.

And this is the rule notwithstanding the fact that he had not yet actually paid the surgeon. *Omaha Street R. Co.* v. *Emminger*, 57 Neb. 240, 77 N. W. 675.

And an instruction in an action for such a recovery, that he is entitled to recover for medicine and medical attendance, is not rendered objectionable by the fact that there is no evidence that any medicines were bought, other than the testimony of the physician as to the amount of his charges. *McDonald* v. *Illinois C. R. Co.* 88 Iowa, 345, 55 N. W. 102.

And a person suffering a personal injury is not required to have his family take care of him without regard to the question of their competency, but may, if he sees fit, procure a trained nurse or other competent person to take care of him; and the person causing the injury cannot combat liability for the services of such nurse, on the ground that his family could have given him the needed care and attention without expense. *Kendall* v. *Albia*, 73 Iowa, 241, 34 N. W. 833.

[12] *Gulf, C. & S. F. R. Co.* v. *Harriett*, 80 Tex. 73, 15 S. W. 556.

[13] *McNaier* v. *Manhattan R. Co.* 22 N. Y. S. R. 840, 4 N. Y. Supp. 310; *Chicago* v. *Wood*, 24 Ill. App. 40.

And the testimony of the plaintiff in an action for a personal injury, as to the presenting of their bills by his physicians, and of the physicians that they had rendered him services to the amounts of the bills presented, is sufficient to entitle the charges for medical services to consideration by the jury, on the question of recovery therefor against the person causing the injury. *Reynolds* v. *Niagara Falls*, 81 Hun, 353, 30 N. Y. Supp. 954.

[14] *Indianapolis* v. *Gaston*, 58 Ind. 224.

[15] *Bowsher* v. *Chicago, B. & Q. R. Co.* 113 Iowa, 16, 84 N. W. 958; *Sachra* v. *Manilla*, 120 Iowa, 562, 95 N. W. 198; *Omaha Street R. Co.* v. *Emminger*, 57 Neb. 240, 77 N. W. 675; *Missouri, K. & T. R. Co.* v. *Nail*, 24 Tex. Civ. App. 114, 58 S. W. 163; *Gulf, C. & S. F. R. Co.* v. *Bell*, 24 Tex. Civ. App. 579, 58 S. W. 614.

But the presentation of a physician's

must be clearly and accurately shown.[16] And, ordinarily, expenses for medical attendance are not recoverable as items of damage in an action by a married woman for a personal injury, unless she has charged her separate estate; since the liability therefor is her husband's, and not hers.[17] Nor is an infant ordinarily entitled to recover for such expenses, the primary responsibility for medical attendance resting with his parents.[18] He may recover, however, when the circumstances are such that his parents are not responsible for attendance upon him;[19] but he must allege and prove the special facts rendering him personally and primarily liable therefor notwithstanding his minority.[20] When the question of license or qualification of a physician arises collaterally, as in a civil action for damages for a personal injury between third parties, due qualification and license to practise is presumed;[21] and evidence in such a case that a person

bill, and its payment or settlement by note or otherwise, is sufficient evidence of its reasonableness, in an action for damages for a personal injury, in the absence of evidence to the contrary, to support a verdict for damages in which a recovery of the amount of such bill is included. *Abbitt* v. *St. Louis Transit Co.* (Mo. App.) 79 S. W. 496.

And an instruction to allow him such sum as will compensate him for money expended for medical treatment of the injury received is not reversible error. *Sachra* v. *Manilla*, 120 Iowa, 562, 95 N. W. 198; *Flanagan* v. *Baltimore & O. R. Co.* 83 Iowa, 639, 50 N. W. 60.

Nor is an instruction directing the allowance, as damages, of the cost of any medicines used by the plaintiff in effecting his cure, though there was no evidence that he had paid for any medicine, where the evidence is conclusive that other items of loss and expense exceeded the award. *Abbitt* v. *St. Louis Transit Co.* (Mo. App.) 79 S. W. 496.

[16]*Heater* v. *Delaware, L. & W. R. Co.* 90 App. Div. 495, 85 N. Y. Supp. 524.

Necessary expense incurred for medical attention cannot be recovered in an action for a personal injury, where permanent injury is alleged and relied on as a basis of recovery, and no effort was made to charge the defendant with special damages. *Illinois C. R. Co.* v. *Hanberry*, 23 Ky. L. Rep. 1867, 66 S. W. 417.

And a person suffering a personal injury who employed a physician, but had not actually paid him, cannot recover of the person causing the injury for the fee of the physician, unless she can show that there is a legal debt against her for such fee, which she can be compelled to pay; and if the physician was unlicensed, such an item of damages cannot be allowed. *Chicago* v. *Honey*, 10 Ill. App. 535; *San Antonio Street R. Co.* v. *Muth*, 7 Tex. Civ. App. 443, 27 S. W. 752. And in such case proof of want of qualification is competent. *San Antonio Street R. Co.* v. *Muth*, 7 Tex. Civ. App. 443, 27 S. W. 752.

[17]*Moody* v. *Osgood*, 50 Barb. 628; *Efroymson* v. *Smith*, 29 Ind. App. 451, 63 N. E. 328; *Gilson* v. *Cadillac* (Mich.) 95 N. W. 1084.

But testimony as to the amount paid by a husband for medical attention to his injured wife is admissible in an action brought by her for the injury as tending to show her condition and the medical attention shown her, but cannot be taken into consideration by the jury as a matter of damages. *Oliver* v. *Columbia, N. & L. R. Co.* 65 S. C. 1, 43 S. E. 307.

[18]*Koehler* v. *Interurban Street R. Co.* 88 N. Y. Supp. 1056; *Bering Mfg. Co.* v. *Peterson*, 28 Tex. Civ. App. 194, 67 S. W. 133.

[19]*Illinois C. R. Co.* v. *Jernigan*, 101 Ill. App. 1; *Bering Mfg. Co.* v. *Peterson*, 28 Tex. Civ. App. 194, 67 S. W. 133.

[20]*Bering Mfg. Co.* v. *Peterson*, 28 Tex. Civ. App. 194, 67 S. W. 133.

[21]*Chicago* v. *Wood*, 24 Ill. App. 40; *North Chicago Street R. Co.* v. *Cotton*, 140 Ill. 486, 29 N. E. 899.

had practised medicine in the state for a long time is prima facie sufficient to show that he was lawfully entitled to practise.[22]

[22] *North Chicago Street R. Co.* v. *Cotton*, 140 Ill. 486, 29 N. E. 899.

INDEX.

(*References are to sections.*)

A.

(*References are to sections.*)

B.

(*References are to sections.*)

(*References are to sections.*)

(*References are to sections.*)

D.

(*References are to sections.*)

(*References are to sections.*)

(*References are to sections.*)

(*References are to sections.*)

(*References are to sections.*)

F.

I.

(*References are to sections.*)

(*References are to sections.*)

(*References are to sections.*)

J.

K.

L.

(*References are to sections.*)

M.

(*References are to sections.*)

(*References are to sections.*)

(*References are to sections.*)

N.

O.

P.

(*References are to sections.*)

(*References are to sections.*)

(*References are to sections.*)

(*References are to sections.*)

(*References are to sections.*)

Q.

R.

S.

(*References are to sections.*)

(*References are to sections.*)

(*References are to sections.*)

W.

(*References are to sections.*)

(*References are to sections.*)

X.

Y.