when I withdrew my hand. I then administered one fluidrachm more of tincture of opium; but although the pulse became firmer and more distinct, and the pupil became contracted, showing that the system was fully under the influence of the drug, she remained in an unconscious state, a sort of heavy sleep, which lasted several hours. On my expressing some surprise at this, the midwife informed me that she had noticed this occurrence after every labour in which the woman had flooded. There was no further hæmorrhage, and she recovered well.

CASE VII.

I was sent for on the 23rd of June, 1843, to a case of flooding after labour, with retention of the placenta. The labour had been natural, and the child was born in rather more than two hours after its commencement. Owing to some delay, arising from circumstances which it is unnecessary to particularize, I did not see the woman till three hours and a quarter after the birth of the child. There had been copious hæmorrhage; the woman was very low and faint, and a good deal of jactitation existed; but the pulse was slower than it often is in such cases, and feeble. On examining the uterus through the abdominal parietes it seemed very firmly contracted on the placenta, as though it were in a state of spasmodic rigidity. I gave one fluidrachm and a half of tincture of opium before introducing my hand, the woman expressing herself much revived by it. I then passed my hand, and had considerable trouble in removing the after-birth, partly owing to its firm adhesion to the uterine walls, and partly owing to the uterine spasm that existed. After I had withdrawn it I gave another dose (one fluidrachm) of laudanum, which the woman again said felt very reviving. There was no further hæmorrhage, and at the end of the week she was well enough to dispense with my attendance. She suffered for a few days from pulsating pain in the head, which was removed by small doses of laudanum, as in the previous cases.

CASE VIII.

On the 7th of March, 1842, I was sent for by a midwife to Mrs. D——. The midwife gave me the following history of the case. The patient had some flooding on the 5th, but it was not abundant, and again during the progress of the labour, which was in other respects natural, and lasted eight hours, the placenta being expelled spontaneously soon after the birth of the child. Very copious flooding occurred after the expulsion of the after-birth, and the woman was soon in a very bad state, being pallid, faint, and extremely restless. The midwife applied cold and friction above the pubis, and the hæmorrhage ceased. The patient, however, remained in such an exhausted state that I was sent for. She exhibited all the usual symptoms of excessive loss of blood, and without entering into detail, I may say that I have seldom witnessed a more unpromising case. I remained with her about an hour, during which time I administered three fluidrachms of tincture of opium, in three doses of one drachm each. The woman said that each dose of medicine acted like a cordial, causing her to feel much revived, and all her bad symptoms were much alleviated by it, the pulse especially becoming fuller and firmer. The last dose of tincture of opium was given at two p. m., and she felt inclined to doze comfortably all the

afternoon; vertigo, however, occurring in a slight degree, if she raised her head off the pillow. She did not sleep until evening, when she dropped into a sound sleep, which continued several hours, and which caused her to awake much refreshed. She had not the least pain in the head next day, and improved rapidly. So favourable was the progress of the case that I did not visit her longer than a week.

REPORT OF THE TRIAL OF A MEDICAL PRACTITIONER, ON A CHARGE OF INTENT TO PROCURE ABORTION.

By THOMAS SHAPTER, M.D., Physician to the Dispensary, Exeter.

(Concluded from p. 21.)

By the term abortion is to be understood the expulsion of the fœtus at any period within its natural period of foetation; its viability on being so aborted, is another question entirely; therefore in examining into the agents that may produce abortion, it will be convenient if any limitations of period are to be indicated, to speak of the early and later periods of pregnancy, the former referring to that period when viability of the fœtus is improbable, and the latter when, on the contrary, the child may be expelled and live. Occasionally this becomes a matter of serious consideration, as in cases of deformity, complications with tumours, &c., where, though it may be necessary to solicit abortion, the doing so should be delayed until the commencement of the latter period.

In order to procure abortion various means have been adopted at different times, all of which may be comprehended under the heads of general and local. Local means, judiciously and scientifically applied, are acknowledged to effect the object, we therefore pass on to the consideration of the general means. Under this head might be placed a vast variety of agents, as repeated bleedings, drastic and hydragogue purges, diuretics, &c., which no one can deny, under certain circumstances, may, by their violent and injudicious application, effect abortion, yet it appears scarcely worth while to devote any space to their consideration; I shall therefore confine such observations as I have to make to the more debatable ground of Savin, Cantharides, and the Ergot of Rye, previously collecting and arranging such well-detailed facts and opinions of acknowledged value, as a hasty search will permit.

SAVIN is usually administered in the form of powder, infusion, or oil. We find cases detailed of its having been taken without producing abortion, of its exhibition being followed by abortion, accompanied with death, and of its causing death without abortion.

Fodéré (*Med. Leg.*, vol. iv., p. 430,) relates the case of a poor imbecile cachectic girl, who, in the seventh month of her pregnancy, took from the hands of her seducer, a glass of wine in which was mixed a large dose of powdered savin. She became so ill that report of it was made to the magistrate, who ordered Fodéré to visit her. The patient stated, that on

taking the drug, she had felt a burning heat, accompanied with hiccup and vomiting: this was followed by a violent fever, which continued for fifteen days. By the proper use of the refrigerants, however, she recovered, and at the end of two months was safely delivered of a healthy child.

Mr. Cockson, of Macclesfield, (*Christison on Poisons*, p. 531,) reports the case of a female who took a strong infusion of savin leaves on two following mornings, which occasioned violent pain in the belly and excessive strangury; in the afternoon of the following day she miscarried, and four days afterwards died. Mr. Cockson examined the body the next day, and found extensive peritonæal inflammation, unequivocally indicated by the effusion of fibrinous flakes—the uterus presenting all the signs of recent delivery—the inside of the stomach of a red tint, checkered with patches of a florid extravasation, and its contents of a greenish colour, owing evidently to the presence of a vegetable powder, as was proved by separating and examining it with a microscope.

Mohrenheim (*Murray App. Med.* Vol. i. p. 59,) mentions the case of a woman, thirty years of age, who took an infusion of savin to occasion abortion; violent and incessant vomiting was induced; after some days she experienced excruciating pains, which were followed by abortion, dreadful hæmorrhage from the uterus, and death. On examination the gall bladder was found ruptured, the bile effused in the abdomen, and the intestines inflamed.

Dr. Dewees (*Syst. of Med.*, p. 133,) also relates a fatal case of the use of savin as an emmenagogue.

In the case of Miss Burns, (*Beck.*, p. 146,) for whose murder Mr. Angus was tried, at Lancaster, in 1808, there is reason to believe from the testimony offered, that savin oil had been administered to effect abortion.

Opinions.—From the above cases it is evident that the statement of savin being a powerful local irritant and poison is correct; with regard to its specific action on the uterus, Dr. Duncan (*Mat. Med.*, p. 456,) says it increases all the secretions, but is apt to excite hæmorrhagy, especially from the uterus; he does not, however, appear to speak of his own knowledge, as he says the oil is *said* to produce abortion.

Dr. Pereira (*Mat. Med.*) says that it operates as a specific excitant and irritant on the kidneys, and yet more obviously on the uterus; that he agrees with the statements of Dr. Home, (*Clinic. Exp.*, p. 119,) and that in his own opinion, it is the most certain and powerful emmenagogue of the *Materia Medica*. . . but, “the popular notion of its tendency to cause abortion, leads on many occasions to the improper use of savin.” . . . and, “it ought to be well known that in those cases in which it may succeed in causing miscarriage, it can only do so at the risk of the woman’s life.”

Dr. Thomson (*Cyc. Med. Art. Em.*) states, that from its proneness to produce uterine hæmorrhage and cause abortion, there is some reason for the opinion that the volatile oil is taken into the circulation, and acts directly upon the uterus, on which it exerts a stimulant influence; and that more than a century ago, its ten-

dency to produce abortion led to its employment as an emmenagogue.

Dr. Christison (*On Poisons*, p. 531,) says, that the oil is very generally believed by the vulgar to possess this property in a peculiar degree; doubts, however, may be entertained whether any such property is possessed by it, independently of its operation as a violent acrid on the bowels; it has certainly been taken to a considerable amount without the intended effect . . . There is no doubt, however, that if given in such quantity as to cause violent purging, abortion may ensue, but unless there is naturally a predisposition to miscarriage, the constitutional injury and intestinal irritation required to induce it are so great as to be always attended with great danger, independent of the uterine disorder.

Taylor (*Med. Jurispr.*, p. 224,) says, none of them (savin and other matters) have any influence on the uterus, except in affecting it indirectly by their irritant action on the system. (p. 593.) Again he says, it has no action as an abortive, except like other irritants by causing a violent shock to the system, under which the uterus expels its contents; such a result can never be obtained without placing in jeopardy the life of the woman, and, where abortion follows, she generally falls a victim. On the other hand the female is often killed without abortion taking place.

CANTHARIDES.—With regard to this irritant very few cases are detailed. Beck and Pereira state generally that cases of abortion have occurred from its use, but the former adds, that very large doses have been taken without producing this effect. Mr. James Lucas (*Mem. Med. Soc., London.* Vol. ii., p. 408,) relates the case of a woman who took a drachm of powdered cantharides, which brought on frequent vomiting, violent spurious pains, a tenesmus, and immoderate diuresis, succeeded by an acute fever, which reduced her to extreme weakness; yet, no signs of miscarriage appeared, and about five months afterwards she was delivered of a healthy child.

Orfila relates (*Gaz. de Santé*, May, 1819,) a fatal case, caused by two doses of twenty-four grains, taken with the interval of a day; the ordinary symptoms of irritation of the bowels and urinary organs ensued, miscarriage then took place, and the patient died on the fourth day, with dilated pupils, and convulsive motions, but with unimpaired sensibility. On examination the brain was found gorged with blood, the omentum, peritonæum, gullet, stomach, intestines, kidneys, ureters, and internal parts of generation were inflamed, and the mouth and tongue stripped of their lining membrane.

Opinions.—Pereira (p. 1370,) says, that in the female the action of cantharides on the sexual system is shown by local heat and irritation, and by occasional occurrence of abortion; again, (p. 1373,) that in consequence of the specific stimulus communicated to the bladder, it has been supposed that the same influence might be extended to the uterus, and thus these insects have been employed as stimulating emmenagogues in some cases with apparent benefit, but frequently without any obvious effect,

Taylor states, (p. 227,) that it is doubtful whether this substance acts directly upon the uterus to procure abortion, while in another place (p. 592,) he says, distinctly that it, together with other substances, has no influence on the uterus, except in affecting it indirectly by an irritant action on the system.

ERGOT OF RYE—Dr. Weihe (*British and For. Rev.*, July, 1836,) relates the case of a female, aged 36, of four months' pregnancy, in whom hæmorrhage came on without any disposition to expel the fœtus, but which was effected by the administration of the ergot. Mr. Evans, of St. Neots, (*Med. Gaz.*, April, 1837,) details a very similar case with a like result. Mr. Heane (*Med. Gaz.*, Jan., 1839,) gives a case of a seven months' pregnancy where the ergot excited the uterus to contract and abort. Dr. Paterson (*Med. Gaz.*, Sep., 1838,) details at length the case of a female in whom premature labour was induced by aid of the ergot, and again a second time in the following year (June 1, 1839.) In the former time he exhibited nearly an ounce, in the latter nearly four ounces and a half. He therefore adds, that it affords—1st, a most satisfactory proof that the *Secale cornutum* is of itself sufficient to accomplish the induction of premature labour. 2nd, it proves that a very large quantity may be given without producing the slightest bad effect or inconvenience, either to the mother or child. Dr. Chatard (*New York Med. Rep.*, vol. xxi., p. 16,) records a case of abortion induced at the fourth month of pregnancy by 12 grains of the ergot only.

Dr. Ramsbotham (*Med. Gaz.*, vol. xiv., p. 436,) relates a series of six cases, varying from the seven and a half to the eighth month of pregnancy, in which he administered the ergot with the result of abortion, and that in none of these cases was there the least indication of a previous disposition in the uterus to assume its contractile function. He further says he could recite several similar instances equally demonstrative of the power of the drug, but adds, however, that in some cases it had entirely failed; that in others, from the inefficiency of the pains, he had thought it right to resort to mechanical means. In another place (*Med. Gaz.*, June 15, 1839,) he says, since the publication of the above, he has received communications from many professional friends, notifying its successful exhibition for the same end.

M. Cabaret (*Rev. Med.*) succeeded in exciting the uterus to expel a mole after the catamenia had been arrested for four months. In this case, however, hæmorrhage had set in previous to its exhibition.

On the other hand we find Dr. Cory, obstetrical superintendant to the London Lying-in Institution, saying (*Med. Gaz.*, Oct. 21, 1838,) he has tried Dr. Ramsbotham's formula, but with only partial success. He however recites a case of seven months pregnancy, in which he excited action in the previously dormant uterus, but was ultimately obliged to rupture the membranes. Mr. Joseph Hodgson (*Med. Gaz.* vol. i. 1840-41, p. 792,) details a not dissimilar case, in which, in a seven months' pregnancy, from the use of the ergot, pains were induced, and the os uteri

relaxed, but where he was ultimately obliged to resort to the rupture of the membranes.

Dr. Condie (*American Journ. Med. Sc.*, vol. x. p. 227,) states that instances have come to his knowledge in which the ergot was employed to the extent of several drachms a day, for the express purpose of inducing abortion, but without exciting the least effect upon the uterus. In all these cases gestation continued for the full period, and the females were delivered of living children. He also says that he has known it given in large and repeated doses by ignorant midwives, where pains simulating those of parturition have occurred towards the termination of utero-gestation, in order to quicken the labour, but so far from doing this, the pains have actually ceased under its use, and labour has not occurred for several weeks subsequently.

Beck (p. 237) states, having met with a case in which a female who had had several children, took of her own accord three drachms of ergot to produce an abortion without any effect.

Four years since a case occurred under my own observation, in which a married female, three months pregnant, took so large a quantity of the ergot as to induce considerable irritation of the stomach, and during more than six weeks afterwards much general nervous tremor, palpitation and anxiety about the heart, but without producing the least uterine action; and, a medical friend informs me, that recently in a case of deformity, he had exhibited the ergot about the seventh month, and when there were really indications of a miscarriage, without producing any satisfactory effect, so that ultimately he was obliged to resort to a rupture of the membranes.

Opinions.—It may well be concluded from the above, that some contrariety of opinion prevails as to the specific efficacy of this medicine in originating action in the uterus and producing abortion.

Pereira (*Mat. Med.*, p. 603,) thinks that most practitioners are now satisfied, that in a large number of cases it has the power of originating the process of accouchement.

Dr. Ramsbotham is of opinion (*Med. Gaz.*, vol. xiv. p. 35,) that it possesses this power from the very commencement of fœtation. "Quarè hoc medicamentum opinor, etiam ab initio, partus dolores inducere posse."

Dr. Ashwell (*Guy's Hosp. Rep.* Apr., 1836,) in referring to Dr. Ramsbotham's opinion and cases, though affirming, in a parenthesis, the ergot to be a drug in which he places great confidence, yet leaves us to infer he does not himself employ it as a means of procuring abortion; for in the series of cases detailed by him, his object was chiefly attained by mechanical means—and that such should be the case is not surprising, when we find Dr. Ramsbotham saying in a subsequent place, (*Med. Gaz.*, June 15, 1839,) "though formerly most unwilling to concede it—he can no longer withhold his consent to the doctrine, that this drug, when taken in large quantities, exerts a poisonous influence on the child's body and although the ergot may bring on labour without having recourse to any operation, yet that it does not present a more likely, nor indeed so probable a means of saving the infant,

as the older method of puncturing the membranes." And yet more recently (*Med. Gaz.*, June 9, 1843,) we find Dr. Lee saying, that he has strong objections to the exhibition of this medicine for the purpose of inducing premature labour, without taking into account the uncertainty of its effects.

Dr. Paterson, whom we have already shown to be practically assured of its power of creating uterine action in the later periods of pregnancy, says (*Med. Gaz.*, June 1, 1839,) that, in proportion as the period of natural parturition draws near, *cæteris paribus*, so will the action of the secale be manifested on the system, and that he believes the earlier the period in which premature parturition is attempted, the less will be the likelihood of success. Moreover he states that several well authenticated circumstances have lately come under his notice, which, taken into consideration with numerous experiments made upon the lower animals, go far to prove that this medicine can by no means be regarded as an abortive; though from these experiments and circumstances he is not prepared as yet to draw a line of demarcation as to the exact period when it may be said to act as it were specifically upon the gravid uterus.*

Mr. Wright, the author of the Harveian essay on the physiological action of this drug, after quoting largely those who assert its power of producing abortion, says (*Edin. Med. Journ.*, vol. liii. p. 27,) he has seen many instances in which its administration in the earlier periods of parturiency was not followed by any increased action, and he should certainly infer it has no tendency to induce premature delivery. He believes the experience of most practical men is in favour of its increasing, but not originating, the pains of labour; this he believes to be the rule, but does not doubt its being liable to exception.

Dr. Christison (*On Poisons*, p. 788,) after alluding to its use in exciting the parturient uterus, says, "these facts however are mentioned chiefly as preparatory to the statement, that it has been also supposed to possess the power of producing abortion, and is believed to have been actually employed for that purpose in some foreign countries; accurate information is still wanted on this subject. No other poison seems likely to possess a peculiar property of this kind, nevertheless it is the opinion of the best authorities that spurred rye has no such power, except in connexion with violent constitutional injury produced by dangerous doses; and that it is endowed with the property only of accelerating natural labour, not of inducing it, particularly in the early months of pregnancy."

Mr. Taylor says the ergot has been found in many instances to bring on violent action of the

uterus, at an advanced stage of gestation, and when efforts at parturition had already commenced. There is however considerable difference of opinion respecting its emmenagogue properties, and he quotes Dr. Lee as affirming that it has no effect at least in the early stages of gestation, although given in very large doses. In conclusion, Beck, after quoting cases of abortion following its use, and experiments in confirmation of its powers, says, though doubtless it may possess them, yet, notwithstanding all this, it is a fact that ergot is no more infallible as an abortive than other medical agents.

From a review of the above cases and opinions one is enabled to arrive at a sufficient satisfactory conclusion as to the action of savin and cantharides on the uterus—they may be stated as not capable of exerting any direct or specific effect on this organ, so that if ever abortion follow their administration it must be attributable to the shock imparted, and general injury done, to the constitution. There is, however, more difficulty in stating the exact power of the ergot of rye—doubtless it has a direct and specific action on the already excited uterus, nor is it less certain that it is *occasionally* capable of originating action in this organ during the later periods of pregnancy. During the earlier periods, however, its action, to say the least, is very questionable; the weight of opinion is certainly against its possessing any such power, and the number of recorded failures substantiates the inference, in other words, it appears necessary for the full and effective development of its properties, that pregnancy should be somewhat advanced. I would therefore offer the following as axioms:—

1. That savin and cantharides are not entitled to be classed as specific exciters of uterine action, and that their exhibition, for the purpose of procuring abortion, should never be entertained.
2. That there are no medicines known capable of inducing abortion by their specific action on the uterus, with the exception of the ergot of rye; that this medicine, as regards this property, is uncertain in its effects, and, most probably, exerts an influence only during the later periods of pregnancy.
3. That in a professional and scientific point of view, it is highly injudicious to exhibit the ergot of rye with the intention of procuring abortion.

It will be observed, that in the preceding observations I have avoided making any comments upon the medical evidence. I shall still adhere to this intention, excepting in reference to my own. It may be seen that the above conclusions are, as regards savin and cantharides, completely in conformity with the opinion expressed on the trial; but that there is some difference as regards the ergot of rye. I then stated this medicine was not to be considered as possessing the property of inducing abortion, whereas, in the course of this paper, sufficient, respectable, and trustworthy opinion is quoted to the contrary. There is, however, much weight of authority for what was adduced, and it was the recollection of this, backed by my own experience in a case most impressive and striking, to say the least of it, that induced me to conclude, and therefore to state, that the ergot of rye was incapable of originating an aborting power in the uterus. As far as the trial was concerned, this misappreciation of the powers of this drug was of no importance, and it is only here pointed

* "It has been supposed that if the secale be found efficacious in strengthening the uterine contractions in natural parturition at the full period of gestation, it will therefore be effectual in the early months of pregnancy, and thus be had recourse to for the base purpose of procuring criminal abortion. Chapman, Goupil, Pelletier, Planche, Gerardin, Guibert, Lorinser, Waller, and several others, have entertained this opinion; while Stearns, Wesener, Villeneuve, Chatard, Dr. Hull, of St. Alban's, one of the greatest declaimers against the use of the secale in any circumstances, Michell, and last, but not least, Dr. Burns, with a host of other modern writers, might be adduced, who deny its powers as an abortive."

out in a spirit of fairness and good faith. I may, however, be permitted to say, that the medical witnesses for the defence were called upon without any notice, or being in the slightest way advertised that their evidence would be required upon these matters; otherwise the investigation, which I have appended to the above account of the trial, would most probably have preceded instead of following my examination.

NEWCASTLE-ON-TYNE INFIRMARY.

CASE OF CALCULUS VESICÆ.—LITHOTOMY.

Peter France, aged 60, received into the Newcastle-on-Tyne General Infirmary, under Sir John Fife, on the 7th of March, 1844, with calculus vesicæ.

About 13 years ago first observed sand in his urine, which at times he passed in great quantity; a while after this, instead of the sandy deposit, small stones about the size of a split pea were voided, and continued to be so at intervals for upwards of two years, when they ceased altogether. At the expiration of three years or so, he began to have difficulty in making water, and slight pain about the region of the bladder, which became gradually worse, and since that period has been labouring under all the usual symptoms of stone in an aggravated form, so much so that he has never known what a good night's rest was till within a week or so of his reception, when Sir J. Fife ordered him some suppositories, which gave him great relief.

His brother was operated upon for stone about 30 years ago, at the age of 24 years. Both were born in Sheffield, in which place his brother has resided all his life time, but this man left when 16 years of age, and, with the exception of a week or two, has never lived there since.

March 12th. Operation performed. The ordinary grooved staff could not be introduced, in consequence of the great distortion of the urethra from so much enlargement of the prostate gland; Sir J. Fife altered the curve to one much more acute, and then succeeded. After the second incision, Sir J. Fife, opened the urethra, as usual, and moving the scalpel quietly backward and forward to secure it in the groove, pressed it cautiously into the bladder, but dividing only a small part of the prostate, for the urine did not gush out freely till the introduction of the forceps. The stone was readily grasped and extracted.

March 13th, pulse 90, quite easy. 15th, doing well. 25th, convalescent.

STEATOMATOUS TUMOUR OF THE NECK.—REMOVAL BY OPERATION.

Thomas Clark, aged 60, labourer, admitted March 7, 1844, under Sir John Fife, with a large steatomatous tumour, oval in shape, extending from the right mastoid process below the clavicle, and laterally from the median line as far back as one inch from the spine. Five years ago he received a severe sprain in the neck in consequence of carrying a heavy load up a ladder on his shoulder; a few days afterwards he noticed a small painful tumour, the size of a pigeon's egg, beneath the mastoid process, which continued to increase slowly till five months ago, when its growth became more rapid, and increased up to the present time.

March 12th. Operation.

The patient being placed in a reclining posture,

Sir J. Fife made the lower elliptical incision first, extending from above the mastoid process to the clavicle; two inches above this the anterior and upper incision passed, the two meeting at their extremities. The posterior part of the tumour was first separated, its base being gradually dissected from the mastoid process and the sheath of the large vessels; its outer surface was then separated from the inner and posterior part of the mastoid muscle, under which the tumour extended till it occupied the space over the subclavian vein; here it was cautiously dissected and firmly drawn upwards, when the whole mass came away. Seven vessels required ligature, after which three sutures were inserted, and the wound was then drawn together more firmly by "Morrison's" transparent adhesive plaster.

March 16th. The wound was opened out this morning, and the integument appears very much distended; the sutures were divided, and a large coagulum rolled out of the wound. Apply turpentine ointment to the wound, and a poultice over it. Two compound colocyath pills every other night.

17th. Wound looking healthy.

25th. Almost cicatrized.

PROVINCIAL

Medical & Surgical Journal.

WEDNESDAY, APRIL 17, 1844.

The importance of accurate and precise processes, for detecting the presence of poisonous matters in the tissues and fluids of the animal body, and in a state of mixture and combination with various substances, is so evident, that it needs no argument to convince medical jurists of the necessity of constantly keeping their attention directed to the improvement of the methods of analysis now in use, and to the devising of new ones. It should moreover be kept in view, that in the practical application of such methods, to the detection of poisoning, whether accidental or criminal, the parties to be convinced of the fact of poisoning are of various degrees of intelligence. The jury before whom the case is investigated, and upon whose verdict the liberty in the first instance, and subsequently the life of a fellow creature, accused or suspected of administering a poisonous substance, depend, is often composed of ignorant and illiterate persons,—ignorant not only of the scientific questions, the value of which they are called upon to estimate, but deficient also in that general knowledge and acuteness which is necessary to enable them readily to arrive at a correct conclusion on any subject whatever. The judge is usually well-informed and trained by education to the detection of fallacies and inconsistencies, both of fact and opinion, but he is rarely instructed in the more abstruse points of science, or at least to the extent necessary to enable him to place the