mation from the midwife, and the results produced and the conditions ascertained by abdominal manipulation? If he pressed his inquiries and his examination far enough to form a reliable judgment, or such as thoroughly educated physicians would ordinarily, under like circumstances, form and act upon, he cannot be held responsible for coming to an erroneous conclusion, though other tests might have been used and were not.

The same rule of duty applies to his subsequent oversight of the case. And his treatment of the patient otherwise, in all the stages of illness, including the application of remedies, must be characterized by reasonable care and competent skill, tried by the average standard of educated practitioners.

If the patient died from the effects of a loss of blood at the time of delivery, and afterward; or the failure of medicines, or the omission of medicines, to invigorate her, still, if the plaintiff used reasonable care and diligence, considering the nature of the case, and the general state of medical knowledge and experience, he performed his duty, notwithstanding the result. So, should the jury find that in some parts of the plaintiff's treatment there was a want of diligence or skill, but the prejudicial effect was slight and temporary, and was not the obstacle to the recovery of the patient, and did not contribute to her death, it may be disregarded. It is a self-evident proposition that negligence which does no injury cannot be the basis of an action, nor detract from the value of otherwise meritorious services.

On the other hand, should the jury find that the defendant's wife was in a condition, from time to time, which the plaintiff could have ascertained by reasonable diligence and skill, and he failed to ascertain her condition, or, after having learned her condition, if it appears that, by a diligent exercise of reasonable skill in the use of remedies well known to educated physicians, he could have saved the patient, and by failing in this due administration of remedies, his treatment was unsuccessful, he cannot recover.—*Detroit Review of Medicine and Pharmacy.*

ON METHYL-ETHYLIC ETHER AS AN ANÆSTHETIC FOR SHORT OPERATIONS.

By BENJAMIN WARD RICHARDSON, M.A., M.D., F.R.S.

IN introducing the subject before the Medical Society of London on the 14th of March, the author explained that within the past

two or three years a practice had been sought for producing quick insensibility, which should be followed by equally quick recovery. Two agents had been employed for this purpose: nitrous oxide gas, and bichloride of methylene. Accepting that the principle of producing quick insensibility had a practical intention and usefulness, Dr. Richardson said he had objection to the methods which, up to the present time, were adopted for carrying the principle into practice. His objections to nitrous oxide gas were as firm as ever. He held still, that the employment of an agent which excluded all atmospheric air during inhalation, which produced the most perfect asphyxia, which required for its administration costly and troublesome apparatus, and which, if administered beyond a given period, even for a few seconds, must of a necessity kill, was a bad agent for anæsthetic administration—was, in fact, a rude and vulgar process, retrogressive in science.

Respecting bichloride of methylene, though it was hard to speak against any application of a remedy which he, the author, had introduced, he must be candid and say that he was not favorably impressed with the application of bichloride for *quick* general anæsthesia. That it was marvellously rapid in its action was true, that it answered the end it had in view was true, and that it had now been used for rapid inhalation an immense number of times was also true. But these facts could not conceal the further and all-important fact, that the bichloride of methylene belonged to a dangerous family of chemical substances, and could not, therefore, be played with without risk. It had been extolled as being safer than chloroform, and that was allowed; for as it contained an equivalent of chlorine less than chloroform, it was materially safer, but the safety was relative, not absolute. Under these impressions, the author was led recently to review experimentally the action of the whole of the more promising anæsthetic fluids and vapors, including chloride of methyl, bichloride of methylene, chloroform amylene, hydride of methyl-ethyl ether, methylic ether, and some others, which were given on a table placed before the society. The result was that he had decided in favor of methylic ether for rapid anæsthesia. The anæsthetic properties of methylic ether were first discovered by Dr. Richardson, in 1867, and the substance has been reported upon by him in two reports to the British Association for the Advancement of Science. On the 20th of May, 1868, he inhaled it for the first time himself, Dr. Sedgwick and

Mr. Peter Marshall administering it to him to complete insensibility. He was narcotized completely in one minute, was unconscious in seventy seconds, and recovered almost instantaneously without nausea, headache or other unpleasant symptom. From that time the author has been in the habit of narcotizing occasionally with methyl-ethylic ether, and recently with marked success.

The ether is made by digesting one part of pure methyl-ethylic alcohol with two of strong sulphuric acid. The mixture is heated, and the methyl-ethylic ether, which passes over as a gas, is subjected to frequent washings in strong potassa solution. The ether remains as a gas even below zero; it has an ethereal odor; it is chemically an oxide of the radical methyl; its vapor density is 23, taking hydrogen as unity. The strongest objection to methyl-ethylic ether is that it is a gas, but, happily, the difficulty is to a large extent overcome, the gas being very soluble in various substances; water takes up thirty-seven volumes of the gas, yielding an ethereal fluid of very pleasant taste; pure ethylic ether and alcohol take up over 100 volumes, and chloroform and bichloride of methylene nearly as much. For practical purposes the author prefers absolute ethylic ether of sp. gr. .720, and boiling point of 92° F. as the solvent. The ether is charged with the gas at a temperature of 32° F., and the compound is at once bottled and firmly corked down. It should be kept for a time before being used, the process of keeping producing a comparatively stable compound. In using this compound, which he proposes to call methyl-ethylic ether, the author at present employs the simple mouthpiece invented by Mr. Rendle, and made merely of leather. He is adding to this a reserve bag, in order to conserve the ether. From one to two drachms may be put into the inhaler for quick narcotization.

Dr. Richardson next described cases in which the methyl-ethylic ether had been administered to the human subject for the extraction of teeth; in eleven cases the whole operation, from commencement of the inhalation to the complete recovery, was under three minutes; in several cases one minute was sufficient, while in two cases forty-five seconds sufficed. In no case was there spasm, syncope, or asphyxia during inhalation, or any after nausea, and in all cases there was a semi-consciousness, so that the patients did what they were bade to do, remembered what had been done, and yet were not conscious of pain.

The author next described the action of

methyl-ethylic ether on the nervous centres, comparing it with chloroform and other anæsthetics containing chlorine. He showed that this ether produced no excitation of the nervous centres which supply the vascular system as chloroform does; and that, consequently, there was absence of muscular spasm, of contraction of bloodvessels and of syncope from fatal contraction of the heart. When it was carried to the extent of arresting life in the inferior animals it produced death by paralyzing the organic nervous centres. This extreme result was preceded by convulsive action, similar to that which is seen in death from hæmorrhage, the convulsion being due to the absence of arterialized blood in the muscles. So well, however, did the heart still retain its power, that in one case, in a lower warm-blooded animal—a guinea pig—the respiration returned *spontaneously* in pure air four minutes and forty-five seconds after it had ceased. No fact could more definitely speak in favor of the safety of this agent.

In conclusion, the author said that as he had confined himself this time to rapid anæsthesia for short operations, his remarks must be taken as bearing on that subject only. He had introduced methyl-ethylic ether as the readiest and best agent he knew of for the purpose described. It was better than nitrous oxide gas, because it allowed air to be given with it, and did not asphyxiate; it was better than bichloride of methylene, because it did not produce muscular spasm and syncope. At the same time he did not consider it as perfect, nor should he consider general anæsthesia perfected, until he or some other observer shall discover an agent that will destroy sensibility without interfering at all with organic muscular life, volitional power, or consciousness. Methyl-ethylic ether approached this perfection, though it did not touch it, and it encouraged perseverance in experimental research. For these reasons it was worthy the attention of the society.

Dr. Richardson again brought this subject before the Medical Society of London on the 21st of March. He dwelt upon the value of methyl-ethylic ether as a general anæsthetic, recording his experiences of it during the last eight days. He mentioned the difficulties he had encountered, first in keeping the methyl-ethylic ether in solution, and secondly in method of administration, and explained how these difficulties were to be met. Respecting method of administration, he said that the ether must be confined in a bag, in connection with the inhaler, and from the bag it must be volatilized, by means of a

hand bellows. The instrument for this purpose was shown; the elastic bag contained layers of domette to receive the ether. By this means all the ether was utilized, and usually two drachms would be found a sufficient quantity. Dr. Richardson reported, that since the last meeting of the society he had administered the ether seventeen times, and with a success quite equal to his expectations. The ether produced quick relaxation of the muscles, with dilatation of the pupils, and this last was a good test of insensibility. The blood which flowed during an operation retained its arterial hue, and there was no sign of asphyxia, or of vomiting. Recovery was rapid, and methylic ether promised to be the best and safest of anæsthetics. In prolonged operations it might be advantageously mixed with bichloride of methylene, the two fluids being in equal parts. The effect of bichloride in causing spasm and vomiting was greatly controlled by the ether.—*The Med. Press and Circular, Dublin, March 30, 1870.*

Reports of Medical Societies.

BERKSHIRE DISTRICT MEDICAL SOCIETY. F. K. PADDOCK, M.D., SECRETARY.

REGULAR monthly meeting at Pittsfield, June 29th, 1870. In the absence of the President, Dr. C. T. Collins, of Great Barrington, took the chair.

The following letter from Prof. O. W. Holmes was read to the Society, being an answer to the resolution passed at the last meeting of this Society, requesting Prof. Holmes to publish his anniversary poem.

"BOSTON, MASS., June 6th, 1870.

"MY DEAR SIR,—The unexpected and flattering request of the Berkshire District Medical Society has overcome certain scruples I had about publishing a piece of verse, meant, like the bouquets of the dinner table, to serve the need of the hour and then be cast aside. I had successfully withstood the golden-mouthed eloquence of an enterprising Editor, but I cannot refuse the request of my old friends, the Berkshire physicians. The poem shall soon be printed, in an easily accessible form.

"My friends must not hold me responsible for the opinions of either the young or the old doctor who took part in the consultation I have commemorated. It is as true in medicine as in language,

*Multa renascuntur que jam cecidère; cadent que
Quæ nunc sunt in honore—,*

but I should be sorry to find myself in the company of those good people whose frequent use of the phrase 'there is no new thing under the sun,' is all they have about them to remind us of Solomon.

"A naturalist might indeed suggest that medical beliefs propagate themselves by a kind of alternate generation, so that if one age is afraid of *sthenia*, the next is like to be just as fearful of *asthenia*, and thus medical practice swings backward and forward between the two poles of the professional creed, represented by brandy and bloodletting. Like the two personages in Pilgrim's Progress, one generation keeps pouring on water to quench the fires of fever, and the next generation is as diligent in pouring on oil to feed the flame of it.

"But after all, if the pendulum of belief does not swing through a pretty wide arc, the hands of progress will hardly be kept going. And it must not be forgotten that in seeming to return to old beliefs, we find that, under the same names, we hold them in a different aspect. If the lancet gets into common use again, much less will be expected of it with our present views of inflammation. If calomel comes again into fashion, we shall hear less about its action on the liver, and less especially of that gorgeous phrase 'unloading of the portal system,' since the report of the Edinburgh Committee, read by Dr. Hughes Bennett at the meeting of the British Medical Association.

"The meaning of all this is, that my pictures are only good-natured caricatures, with truth enough in them, probably, to be recognized as not wholly drawn from fancy, but intended only to afford a few moments' entertainment after a banquet not in general oppressive by its hilarity.

"I am quite sure that as a token of friendly recognition of their very kind and most welcome remembrance, my Berkshire friends will look upon the printed page of this slight performance with patience if not with pleasure.

"Believe me, dear sir, very truly yours,
O. W. HOLMES.

"J. F. A. ADAMS, M.D.,
Sec. pro tem, Berkshire Dist. Med. Society."

Dr. Smith, of Pittsfield, reported a case of chronic pneumonia in a carpenter aged 50 years.

Dr. Reynolds, of Richmond, reported a case of *Diabetes Mellitus* in a man aged 60. He now passes three quarts of urine in the twenty-four hours, and the yeast test shows a considerable amount of sugar. The patient is improving, the quantity of urine is