

THESIS.

The
Psychological Action
of

CHILDREN,

Preceded by a short History of that
Substance.

By
William Browne Wingett
1855.

"No one invents anything. While man thinks he merely gives activity to the one law of thought which is inherent in him and all others. An atmosphere of truth surrounds him, and to this he only returns what he has drawn from it—expressing and inspiring knowledge."

Leuchtersleben.

1. Annales de Chimie et de Physique, vol. XLVIII. p. 151. Art. "Recherches sur quelques Combinaisons du Chlore," par M. Soubeiran.
2. Ibid. vol. XLIX. Art. "Sur les combinaisons produites par l'action du Chlore sur l'alcool, l'éther, le gaz oléifiant, et l'esprit acétique," par Justus Liebig, p. 146.
3. Ibid. Vol. LVI. p. 115. Art. "Recherches de Chimie organique," par J. Berzeli.
4. "The Physiological and Medicinal Properties of Bromine and its compounds," by R. M. Glover, M.D., (The Harveian Prize Essay for 1842.)
5. Christies' Dispensatory.
6. "Account of a new Anæsthetic agent, or a substitute for Sulphuric Ether in Surgery and Midwifery," by J. G. Simpson, M.D., F.R.S.E., 1847.

"Capti tantum ego operum alienorum."

The History of the Trichloride of Formyle, (C_2HCl_3) better known by the synonym Chloroform, given to it by Dumas, is altogether a curious and interesting one. Soubeiran^(1.) and Liebig^(2.) discovered it almost simultaneously in 1831-2, Dumas^(3.) determined its composition in 1835, Glover^(4.) by a series of experiments ascertained its action upon the lower animals in 1842, confirmed by Flourens^(5.) in 1847; but the honour of discovering its anaesthetic properties and application in Midwifery and Surgery, was reserved for Dr. Simpson, who announced it to the profession and public in November, 1847.^(6.) Before Dumas investigated its chemical composition and relation to other bodies, it was obtained by the action of alkalis upon Chloral, and the process is thus described by Thompson:—"When Chloral is mixed with milk of lime, potash, or baryta water, and distilled, Chloroform is obtained. A very dense, limpid, and transparent liquor comes over. It must be repeatedly agitated with pure water, and after having drawn

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1. Thomson's Organic Chemistry p. 313.

drawn off the greater part of the water with a sucker, a quantity of sulphuric acid, about six or eight times the volume of the residual liquid is added. The whole is violently shaken, and the chloroform which remains on the surface is drawn off" (1.) (Dumas gives the following formula for its preparation by distillation from chloride of lime, rectified spirit, and water:

Pulv: Calcis Chlorinatæ - lb. $\overline{10}$.

Spirit: Rectificat - - - f. $\overline{3xij}$.

Aquæ - - - - - lb. $\overline{xij}$. *Qs.*

and (M. Christin describes the process thus; conducted, however, with only one fourth of the above materials:—
"Distilled in a strong vessel it yields about nine fluidounces of crude chloroform of the density 1.220. After this the residuum begins suddenly to froth up. The crude chloroform, which is covered in the receiver by a stratum of weak spirit, is purified by shaking with half its volume of sulphuric acid gradually added, and water and alcohol being thus removed, the strong chloroform is freed of a little sulphuric acid by redistilling it from milk of lime or baryta. The product, which is pure chloroform, if the process be well conducted, amounts to about half a fluidounce. I have not found the quantity to be increased, as some have represented, by

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1. *Christison's Dispensatory* p. 970.

increasing the alcohol." (1.) The liquid thus obtained is colourless, oily, with a sp. gr. of 1.480; vapour 4.199, that is to say, about four times the weight of atmospheric air. It boils at $141\frac{1}{2}^{\circ}$ F., but is not inflammable; is sparingly soluble in water (only in about two thousand parts), but mixes readily with alcohol and ether.

Like the latter substance it dissolves volatile oils, resins, balsams, and caoutchouc. Upon exposure to the air it rapidly evaporates. Its characteristic ~~and~~

ethereal and agreeable smell is communicated to whatever may be brought into contact with it, though it possesses the advantage over ether of being soon dissipated. Its taste is sweet, and has not inaptly been likened to the flavour of fragrant and delicious apples. Pure chloroform, however, cannot always be obtained; and the impurities may be due either to its adulteration with alcohol, or to the presence of oil, chlorine, and sulphuric acid through faulty preparation, &c., Many methods have been suggested for testing as to the presence of these impurities, some of which I shall specify. When alcohol is present, it may be detected, first by taking the specific gravity, and then by dropping a minute portion into water, which, if mixed with alcohol, will immediately become opaque. Sulphuric acid may be discovered by litmus-paper on the

1. Dr. Christon.

2. Etherization in Surgery. By Dr. Fleming. 1851. p. 22.

3. Edinburgh Monthly Journal of Medical Science. May, 1850.

the action of Nitrate of Baryta on distilled water agitated with it. (1.) For all practical purposes, the method employed by Dr. Fleming, of Dublin is amply sufficient. He never uses chloroform without first examining it by litmus paper, water, or a solution of the Nitrate of Silver; and says "If the former remains unaffected by the vapour, and some of the specimen dropped into a test-glass containing either of the latter fluids, occupies the bottom of the glass in a transparent globule, I am satisfied that it is genuine, or at all events, suited for practical purposes. But if, on the contrary, the litmus paper is reddened or bleached, and the globule appears opalescent, or like a muddy lens, I reject it as adulterated, and unsafe for use." (2.) Oils are the most dangerous kinds of impurity, yet so often present, that Dr. Grey states ~~that~~ he frequently found specimens "adulterated to the amount of one fourth, or even one-half with poisonous oils, and often with free hydrochloric acid." (3.) Perfect colourless and pure oil of vitriol, however, is a most delicate test for their detection, precipitating the carbon, and causing a brown discoloration. If hydrochloric acid or chlorine be present the irritation in the air passages must be very great, and would be quite sufficient to account for many of the accidents

1. A Treatise on the Inhalation of the Vapour of Ether, by
J. Robinson. London, 1847.

accidents which have happened, and which have been (very unjustly) set down in the lists of the "recorded" deaths from Chloroform. Little else remains to be said of its chemical composition, physical properties, or impurities; but of the scientific men who discovered it, we may almost remark with truth, "Ubius serch diligens agiscita, quareum adspicere baccam ipse nunquam," for they never for one moment suspected what humanity was to gain by the future discovery of the properties of this invaluable substance—the fruit of their industry and research.

It has been said that the sound of Anaesthesia first made its way across the Atlantic to Great Britain, but the reverse is actually the case—Sir Humphrey Davy, fifty years ago, having proposed the application of Nitrous Oxide gas to the removal of pain in surgical operations; and the late Dr. Woodcombe, a physician of my native town, Plymouth, is well known to have been in the habit of causing his patients to inhale Ether "as a sedative and anaesthetic in pulmonary complaints." (1.) Dr. Horace Wells, a physician of Connecticut, however, first put in practice in modern days, what Davy had suggested so long ago, but he publishes it as an idea of his own—the "result of analogical inference from the effects"

1. A History of the Application of Nitrous Oxide Gas, Ether, and other Vapours, to Surgical Operations. By Horace Wells, Hartford, U. S., 1847.

effects of great excitement in producing insensibility, as in
 "laudanum," &c. (1.) It would appear that one of
 two other American gentlemen, either Dr. Jackson or Dr.
 Morton, to whom Dr. W. Wells had communicated
 his discovery, hit upon ether as a substitute of
 troublesome & prepare and always at hand; but
 which of them it was cannot be satisfactorily de-
 termined. Dr. Morton, after trying it upon
 himself, was certain the first to use it with
 success in the extraction of a tooth, and afterwards
 to cause it to be tried in the operating theatre of
 the Massachusetts General Hospital. It is,
 however, a point of little moment, as in addition
 to what I have collected and advanced above, as to
 nitrous oxide gas and ether, Dupin and Christison
 have pointed out in their works on Toxicology,
 that animals were liable to become insensible when
 submitted to the influence of the latter. Of its
 soothing properties in pulmonary complaints, I may
 mention, also, that it was prescribed by Pearson of
 Birmingham, as long ago as 1795, as a remedy in
 Phthisis. Dr. Jackson, then, by a little research
 into the annals of the "old country," might have
 satisfied himself that he was no discoverer, as his
 letter to the Academy of Sciences would infer; and
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1. Vol. IX. p. 179.

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Mr. Simpson would have been spared the trouble (which by the way, looks very like bitter irony) of proposing a "world's testimonial to the illustrious Jackson!" So much for Anaesthesia by means of Ether as it was said to have come to us from the American continent. It led, indeed, to great results—in fact, to Anaesthesia by Chloroform; and in order to give an idea of the industry displayed in the attempt to ascertain how far Anaesthetic properties were possessed by other bodies, I subjoin a classified list of those tried by Mr. Simpson, and copied by me from an article on the subject in the British and Foreign Medical-Chirurgical Review for January, 1852. (1.)

The groups are arranged in the following order:—

1. Protoxide of Azote, N_2O .
2. Carbonic Oxide, CO . Carbonic Acid, CO_2 .
3. Light Carburetted Hydrogen, C_2H_2 ; Olefiant gas, C_2H_4 .
4. Ethyle series:—Alcohol, $C_4H_5O + H_2O$; Sulphuric Ether, $C_4H_5O + SO_3$; Nitric Ether, $C_4H_5O + NO_5$; Acetic Ether, $C_4H_5O + C_2H_3O_3$; Hydrochloric Ether, $C_4H_5O + HCl$; Hydrobromic Ether, $C_4H_5O + HBr$; Hydriodic Ether, $C_4H_5O + HI$; Formic Ether, $C_4H_5O + C_2H_3O_3$.
5. Acetyle series:—Aldehyde, $C_4H_3O + H_2O$; Dutch Liquid,

Liquid, $C_4 H_3 Cl + Cl H$; and doubtless the corresponding iodide and bromide.

6. Formyle series:—Chloroform, $C_2 H Cl_3$; Bromoform, $C_2 H Br_3$; Iodoform, $C_2 H I_3$.

7. Compounds of methyle:—Pyroxylic spirit, or wood Naphtha, $C_2 H_3 O + H O$; Rock Naphtha, $C_4 H_5$; Coal Naphtha; Formemethylal, (uncertain composition); Methylal, $C_2 H O + 2 C_2 H_3 O$.

8. Turpentine, $C_{10} H_8$; Benzoyl, $C_{12} H_6$; Camphor, $C_{10} H_{16} O$; Creosote $C_{14} H_9 O_2$.

9. Bisulphuret of carbon, $C S_2$.

10. False Anaesthetics, as Sulphuretted Hydrogen, Prussic Acid, Coniine, &c.

11. Mixed bodies, Oleum Ethericum, Chloric Ether, &c.

12. Acetone, $C_3 H_3 O$.

Chloroform was, I believe, the last of these substances tried by Dr. Simpson and his assistants; and when the record of its effects and properties was published, it created quite a furor, and was hailed with delight by the enlightened practitioners of Medicine and Surgery all over the country. Empirics, indeed, and total abstinents, aye, and I am ashamed to own it, some of the Teachers in the London Medical schools, preached a crusade against the views propounded from time to time by Dr. Simpson. They prognosticated numberless deaths from its administration,

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1. (No. Simpson. 1847).

ministration, by inducing an insensibility worse than drunkenness, and so causing asphyxia, fatal syncope, and paralysis; & if not these, laying the foundation of tubercular consumption of the lungs. Pious ladies, and their bosom friends the clergy, protested against its use in midwifery, as an abnegation of the primitive curse, and consequently contrary to religion, and the express commands of Scripture; yet notwithstanding all that could be said or written upon the danger of popular ignorance, it was only after the publication of the "Answer to the Religious Objections," (1.) that the sex was calmed and satisfied, and a triumph obtained over all the arguments and clamour brought against it by these enemies to advancement. Some few, however, and at their head the Professor of Midwifery in St. Thomas' Hospital, Mr. Charles Waller, declared themselves not convinced by the "Answer," it being in their estimation "exceedingly unsatisfactory."

It was precisely in the same spirit of incredulity and contempt which condemned Harvey, Ambrose Paré, and Jenner as quacks, vagabonds, impostors—that many at first objected to the employment of Chloroform and other substances as anaesthetic, the soporific, and experimental agents; but if it cause
astirment

astorishment, how much is that astorishment enhanced by the reflection that but the other day such a man as Sir William Hamilton tauntingly put the query, "Has Medicine advanced one step since the days of Hippocrates?" That the discovery of the valuable properties of Chloroform, like Vaccination or the introduction of Peruvian Bark should be denounced by ignorant vulgarity or religious bigotry as ^{an} invention of the devil, is not so much to be wondered at; but that the educated classes, and above all, many members of our own profession, should scorn the idea of its efficacy, is only to be paralleled by such a question from the professor of Logic. True, it is recorded among other things of the physician of Cos, that he delivered Athens from a dreadful pestilence, for which he was publicly rewarded with a golden crown and the privileges of a citizen. But has not modern Medicine done as much? Though the honours usually bestowed upon the benefactors of the race in this age, are but poor modern acknowledgments. Is it nothing, I would ask the worthy baronet, that in his own day, a colleague in the same University has succeeded in the discovery of an agent by which surgical operations are rendered painless?—and is it nothing, that by the advances made in medicine and the collateral

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collateral sciences, the public are protected from the violence of plague, scurvy, and small pox? Let us enter the operating theatre of an hospital and witness what is going on there - the human body mangled by the knife of the surgeon, and the patients utterly unconscious, or perhaps in the enjoyment of a happy dream. Let us think of our soldiers and sailors, battling for their Queen and country, ever liable to receive wounds of the most frightful description - is it no advance that relief can be afforded them, without first inflicting a torture which cannot fail of eliciting groans and causing contortions sufficient to unnerve the most experienced surgeon? But to proceed. Many were the moral and religious, many the physiological and medical objections urged against the employment of Chloroform; but these have been so ably answered by Dr. Simpson himself, that it would be a work of supererogation upon my part to attempt to give any lengthened narrative of them. I shall content myself, therefore by briefly noticing one or two articles which appeared in the professional periodicals long ago, and which will furnish a fair idea of the kind of opposition, and of the difficulties to be overcome by its advocates, before the substance could be fully brought into general practice.

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In the third volume of the Psychological Journal, 1850, p. 270, we meet with the following paragraph attached to an article headed "Insanity from Chloroform employed in Parturition," though I can scarcely bring myself to the conclusion that it must have dropped from the pen of the editor of that "quarterly". "Besides instantaneous death, which occasionally supervenes from the administration of Chloroform, the examples just related show, that one of the consequences now ascertained to follow its use, under certain circumstances, is mental alienation, and although some practitioners may consider such attacks simply as cases of puerperal insanity, the effect is still so very serious as to require the most attentive consideration of physicians. Stupefaction during labour, or deadly intoxication, seem the chief benefits derived from the use of Chloroform in Midwifery, and however desirable it may be, at first sight, considered by patients or friends, to alleviate suffering during so painful a period, nevertheless, even temporary relief from pain may be obtained at too great a sacrifice, if consequences like those now detailed should result from the employment of this powerful anaesthetic agent, which appears at present to have many proselytes, as well amongst surgeons, as with some accoucheurs." The annotator in this instance seems

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seems to have forgotten to make inquiry concerning several important elements for success in the use of the agent.

1st. Was the chloroform pure? This is the most important consideration, for it is notorious that for a long time it could only be procured genuine from those pharmaceutical chemists, The Messrs. Duncan, Lockhart, and Co., of Edinburgh, and I can imagine Insanity as likely a result as the sequela of the inhalation of the poisonous matter before alluded to, as Death by asphyxia when due regard has not been paid that a proper admixture of atmospheric air has taken place with the vapour admitted into the respiratory passages.

2nd. What was the state of the patient's health previously? because affections of the brain, heart, and lungs have been looked upon by many in the profession, as contra-indicating its use. Save where the mitral valve is implicated, I do not attach much importance to these opinions, as I have seen it administered successfully to many insane and phthisical patients, and it is frequently prescribed for the relief of dyspnoea both in cardiac and pulmonary complaints.

3rd. Would not the same phenomena have occurred independently of the administration? for Dr. Simpson has collected and I believe published, numerous cases of sudden death,

1. *Medical Times*. 1849. Vol. XX. p. 141.

2. *Medical Times and Gazette*. July, 1853. p. 41.

death, (and why not Insanity or any other of the alleged evils?) where Chloroform was about to be used, but from some cause or other - from not being at hand or from the trifling nature of the operation - was dispensed with. It is only by instituting such inquiries and advancing such arguments that we can ever hope to confute and convince these sceptics. It is not likely, however, that a passage similar to the one quoted, will ever again appear in the pages of so admirable a journal.

About the same time, the then editor of the "Medical Times" thus expressed himself regarding Dr. Simpson and his discovery: - "The question is natural - Are we safe in his (Dr. Simpson's) hands? Some hold we certainly have upon him. He has a reputation to lose. If Chloroform in the practice of Midwifery be finally condemned, his credit with the profession, and even with the public, will suffer some discount." (1.) No doubt of it - yet four years subsequently a wonderful "change comes o'er the spirit" of the journal, and he confesses that he is "naturally led to reflect upon all that humanity has gained, and to contrast this with the neglect of those by whose exertions the gain has been secured." (2.)

1. Gumbz. Girardin, &c.

2. Annapolis, Sedillo, &c.

I shall finish this short notice of the objections to the use of Chloroform, with the remark—which seems almost to amount to a general law—that any man of science, in announcing a discovery likely to supersede the practice of ages, must be prepared and armed at all points to meet and rebut opposition, misrepresentation and calumny. If he cannot do this, he is still in possession of the "mens conscia recti," in which will be his chief consolation; and he should be cheered on by the remembrance of the fact furnished by all history—that the light of Truth invariably dispels the clouds of Injustice, and sooner or later, must prevail.

I have now briefly noticed the great controversy which has arisen among scientific men as to whether the action of Chloroform be on the Cerebro-spinal system directly; on the ganglionic system; (1.) as a poison circulating in the blood; or as preventing a due supply of oxygen, and so tending to cause venosity of the blood and death by asphyxia. (2.) Waller and Briarson as the result of their experiments, were led to maintain the opinion, that in fatal cases the respiratory movements cease first, and that the cessation of the heart's action is secondary.

J. W.

Mr. E. K. Bickerteth, while clerk in the Surgical Hospital here, in 1853, by a series of observations in the wards and operating theatre, and by numerous experiments upon the lower animals, seems to have confirmed this view, and he published a paper relating his experience and mode of procedure. He also endeavoured to show by cases where the restoration of almost asphyxiated patients had taken place, that his principles were applicable to the human subject, and he came to the following conclusions as to the modus operandi:— 1. That in death from the inhalation of Chloroform, the respiratory movements cease before the cardiac. 2. That the heart continues its action, uninfluenced by the chloroform, for a period longer or shorter, after the cessation of respiration, and that its then failing may be considered as a natural consequence of the respiration having ceased, and as independent of the influence of chloroform. 3. That if after the respiration has ceased, and while the heart is still in action, chloroform continues to be absorbed into the system, its movements may become impaired or cease—the chloroform in such a case acting directly upon the heart. 4. That if artificial respiration be resorted to before the cardiac contractions are

1. *Monthly Medical Journal*. Sept. 1853.

2. *London Journal of Medicine*. April, 1852.

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are seriously affected, and be properly maintained for a sufficient period, the respiratory function may be re-established." (1.)

From the case with which the experiments which led to these conclusions were conducted, it would be but reasonable to suppose that Mr. Bickersteth had arrived at correct data, yet Dr. Pennance, in the account of what he calls a fatal case, published in the same journal for November, 1853, states upon the evidence of his colleague, Mr. Spens, and of his assistant, the late Dr. Alex. Sturthevant, that complete cessation of pulsation was noticed before the breathing stopped, and consequently that the injurious action of the Chloroform was directly upon the heart. Were it not for the well-known skill and care of those gentlemen, the result might be ascribed to maladministration, or even to excess in the amount inhaled, for we have Dr. Snow declaring, that "if the air respired contain more than eight per cent of chloroform, the action of the heart ceases very suddenly, and sometimes before the breathing." (2.) Considering the diversities of the statements, then, as to the ultimate mode in which chloroform induces anaesthesia or causes death, we are not in circumstances to

to maintain either the one doctrine or the other exclusively; and until we can increase our knowledge as to the laws regulating its action upon different individuals, we shall not be in a position to decide with certainty. That habit of body or peculiarity of constitution ~~does~~ exercise some influence is evident, for in Dr. Chamberlain's case it is admitted that the patient's health had been "impaired by his previous habits, and likewise weakened by an attack of pneumonia from which he had hardly recovered."

The sticklers for the asphyxia theory contend that the post-mortem appearances in the bodies of animals, or of those dead from chloroform, are exactly what might be expected in such cases—the right side of the heart filled with clots of dark blood; the left empty; lungs congested, and the veins of the neck and chest distended with fluid venous blood. (Dr. de Chamberlain, a graduate of this University, however, conducted some most elaborate experiments, and communicated the results to the Royal Medical Society during the session 1852-3; and it would appear from those investigations that chloroform "when inhaled does not darken the blood," and that it kills by acting on the nervous system in a way

1. Communication as to the Effects of Chloroform on the Blood. Read Jan. 21st, 1853.

2. Report of the Committee appointed by the Royal Medical Society to investigate the Effects of Chloroform on the Blood.

may more resembling coma than anything else, and that where the appearances of asphyxia are found after death, they are secondary, and do not result from the chloroform so much as from the manner of its administration." (1.) These results were thought so interesting and important, that a committee was appointed by the society I repeat and extend Mous. de Chamunet's experiments; and in the report of their labours, the gentlemen composing that committee state first, that "they have had unfeigned pleasure in observing that his original experiments have been carefully performed and accurately recorded;" and then (and I add this as showing another discrepancy of opinion) that the administration "does not necessarily cause either sugar or albumen to be found in the urine." (2.) There must be a mistake in this statement, for such authorities as Bernard, Christison, and others, have repeatedly found sugar in urine after the exhibition of the anaesthetic. A great deal, however, may depend upon the length of time the patient is kept under its influence.

It was my intention before concluding this very imperfect sketch of the History of Chloroform, to have attempted an account of its therapeutical applications, but

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but I found the subject so vast as to convince me that I should fail in doing it justice. If, however, the value of the agent may be estimated by the number of its applications during a period of eight years, we must acknowledge that it is the most useful article of the Pharmacopoeia. In Surgery it is invaluable. Patients are saved both alarm and pain in undergoing an operation—and it is said lose less blood—and the operator can perform his duty as steadily as if employed upon a subject in the dissecting room. In obstetric practice—who can possibly deny it the first rank? And, in the diseases of women, where examination, and even operations shocking to delicacy are imperative, how many a blush has been saved, and relief afforded, without a single feeling of delicacy having been offended. These are some of its most prominent advantages—but in unskilful or reckless hands it may be abused and lead to direful results—administered at proper seasons by competent persons, it bears "healing on its wings," and is, indeed, a Heaven-sent gift.

Its Psychological Action.

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"So long as Metaphysicians limit their inquiries to the laws of Mental Action, and omit therefore an investigation of the organic conditions under which that action takes place, so long will Mental Philosophy and the whole theory of human nature in all its aspects, be incomplete." Winslow.

"There is no Physical state which is not Psychically reflected, therefore the knowledge of these psychical reflexes is useful, nay necessary, not only to the physician of the Mind, but to every Medical Man." Sencklerleben.

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1. *Plissinides* *Pliny.*

As it is curious, interesting, and highly important to watch and chronicle the effects of all drugs upon the mind, the object of this portion of my thesis, as the title fully expresses, is to point out the influence Chloroform exercises upon the cerebral functions; the question of its wonderful efficacy in smoothing away one of the main difficulties with which our predecessors, as surgeons, had to deal - (I mean the agony inflicted upon patients, and of necessity upon the feelings of the practitioner during an operation) having been already alluded to in the preceding pages of this paper.

That physicians and surgeons from the earliest ages, if not actually acquainted with anæsthetic agents, were yet anxious to obtain them, will be made evident at once, by calling to recollection, the accounts of the use by the Greeks and Romans of the Memphis-stone and Mandrake; & still later, by the employment by practitioners of all countries, of Hyoscyamus, Belladonna, Opium, and other

1. Plutarch's life of Anatus. Chap. 3.

2. Taciti Annales. Liber 12th.

other narcotics, previous to the use of the knife, or as a means of allaying intense pain. The search for notes and notices of their effects upon the mind, is equally interesting, and therefore opens up a wide field of research to the inquirer. For instance, in Plutarch we meet with the following passage regarding Meatus the younger: "And as to his son, Philip who was naturally wicked, and delighted to add violence to cruelty, gave him potions not of the deadly kind, but such as deprived him of reason; inasmuch that he took up inclinations that were shocking and monstrous, and delighted in things that not only dishonoured, but destroyed him." (1) In Tacitus we find a description of the jolt & confuse and disorder the mind of Claudius: "Exquisitum aliquod placebat, quod turbaret mentem, et mentem differet. (Deligitur artifex talium vocabulo Locusta." (2)

Of the importance now attached to the study of Psychological Medicine, nothing is more confirmatory than the fact, that attendance upon such a course of lectures is imperative upon those gentlemen intending to enter the H. E. S. C.'s service, and will be, doubtless, soon required of army and navy candidates. Facilities for this purpose have been secured to students by the directors of the Metropolitan asphyxians in England and Scotland,

1. Psychological Journal. Art. "The Instruction
of Medical Pupils in Mental (Diseases)." Vol. I. p. 105.

Scotland, who have made such arrangements as will enable the Medical Superintendents of Bethlem and Insane Asylums to deliver an annual course of lectures, illustrated by the cases under their charge, & a limited class. I may mention, incidentally, that Psychological instruction has been offered students at various periods by Sir Alex. Munro, late of Bethlem Hospital; by Dr. A. Sutherland, St. Luke's; by Drs. Conolly and Hitchman at Hamwell; by Professor Truill at the Edinburgh University; and besides, "several of the provincial asylums have received a limited number of young medical men as resident pupils, for the purpose of obtaining information and practical experience respecting the nature and treatment of Mental alienation." (1)

Dr. Forbes Winslow, in a recent lecture, thus spoke of the objects to be attained, and the advantages to be derived from such instruction:—"What?" he asks, "can compare in dignity, in sublimity, in comprehensiveness, or in the lofty aim of its disquisition, & the study of the nature and operation of that Spiritual Science, upon the right knowledge and cultivation of which depends our happiness both in time and in eternity? As the mind advances in a knowledge of its own phenomena, the intellect expands, new sources of delight open to us, and the pleasure we experience

1. "The Psychological Character of the Physician."
Lancet, June 26th, 1852, pp. 609-10.

experience in the pursuit of these exalted speculations, impress forcibly upon the mind itself, conclusive evidence of its own Divinity. He who has habituated himself to trace out the numerous applications of mental philosophy to the important subjects of education, morals, and legislation; to analyze the nature of thought, the laws regulating the operation of our ideas; the springs of action, the origin of our happiness, the laws of moral science, the nature of the passions, the formation of character, the foundation of our hopes, and the influence of our emotions—will appreciate this branch of science. The physician will be conscious as he advances in a knowledge of the constitution of the mind, that his love of truth is growing strong; and whilst in the spirit of true humility he acknowledges the limited nature of his intellectual powers, he will, whilst contemplating their grandeur and importance, recognise the Goodness and Majesty of God." (1.)

No writing of mine could half so forcibly have expressed what should be the aim of my present endeavour, or the interests all who desire to become successful practitioners, should take in Medical Psychology.

1. *celus de Medicina, Lib. III. Chap. 18.*

Psychology, as the words of this most accomplished
 physician—standing foremost, as he does, among
 the many able and distinguished men who now
 devote their energies to the study of the mind as
 well as the body, and their time to the care and
 cure of those unhappy creatures, who formerly, if
 imbecile, were allowed to roam at large, the sport
 and scorn of the vulgar; but who, if maniacal
 and dangerous, were shut up in seclusion, left in
 darkness and loathsome filth—treated by chains,
 the scourge, and all that we can conceive of the
 utmost barbarity. "Ubi perperam aliquid dixit
 aut fecit, fame, vinculis, plagis coercendus est," (1.)
 was the formula of Celsus, and it was adopted
 and carried out to the letter for a period of
 sixteen hundred years. The charitable idea of
 the North American Indian, that such in-
 dividuals are specially favoured of the "Great
 Spirit" might, indeed, long ago have taught us a
 lesson we have only of late years begun to learn.
 Fortunate, at last, are the people of this great
 country, in the knowledge, that of the six
 millions annually bestowed in charity, a
 noble portion is set aside for ameliorating the
 condition and protecting the Insane.

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It has long been the practice—but more especially among young medical men—to observe with a sneer or a sarcasm, that inquiries such as I am about to enter upon, are very amusing, but utterly unimportant, unnecessary, and of no avail to the practical man. The reverse is the case—for what do the statistics of Insanity prove? Of the many startling facts brought to light by the labour bestowed upon the subject, and from the histories recorded in the carefully-kept case-books of asylums, I shall at present mention but this one, and which demonstrates beyond the possibility of contradiction—that of various powers at work tending to the suspension, overthrow, and destruction of man's reason, Intemperance causes one fifth of all cases brought under treatment. Surely, then, it is no small privilege for those who have made the "Mind diseased" their particular study, to be enabled to announce with certainty to their fellow creatures this lamentable result of their investigations; and to warn them, that the preservation of the moral and intellectual faculties in all their beauty and grandeur, depends in a great measure upon themselves—that although after the invasion of the disease, these unhappy victims of crime or vice, are no longer looked upon

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upon by the law of the land as responsible beings,
 yet morally speaking, they must be held accountable
 for the causes which led to the obliteration of the
 power granted & guide them aright in "thought,
 word, and deed." I might have extended my
 notice of the valuable results arrived at since
 Pinel and Esquirol pioneered the way; not only by
 originating a more humane method of treating
 Insanity, but by suggesting a more rational mode
 of inquiry into its cause; but the example I have
 adduced will sufficiently prove, that such researches
 are far from being unimportant or unproductive
 of information which may be of the greatest utility
 to the physician, by helping him to unravel the
 tangled web of madness, and overcoming the manifold
 difficulties which still embarrass him in the
 treatment of a malady ^{the frequency of} which advances with the advance
 of civilization, and increases as science and art increase
 and provide in abundance the elegancies, and luxuries,
 and refinements of life; and which in many instances
 are placed at the command of those hitherto un-
 accustomed to them, but who may have been fortunate
 in the sudden and comparatively easy acquisition of wealth.

Certain metaphysicians (with whom, as a
 very

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1. Psalm 146.

very humble individual, I entirely unlearn,) apart as a great theorem, that each individual is composed of three distinct parts—Body, Mind, and Soul—and, moreover, that the Soul is as different from the mind, as the mind is from the body—the mind and body being mortal, the Soul immortal. How these are united, or finally disunited is altogether inconceivable, and the well-known aphorism so long ago set forth by Socrates, that we know little concerning them save our own ignorance, is as equally certain, and as generally admitted in our own days. Still Soul and Mind are regarded by many as synonymous terms, notwithstanding the authority of Scripture, which would justify the contrary opinion; for we read in the Psalms—"When the breath of man goeth forth, he shall turn again to his earth, and then all his thoughts perish:" (1) and by thoughts we must certainly understand the operations and manifestations of mind—"the bloom, the effluence of matter, which perishes with that bodily organism whose fairshest fruit it is." And here how appropriate are the beautiful lines of Shelley:—

"The same

Marks of identity are there;
 Yet, oh how different? One aspires to Heaven,
 Pants

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Pants for its sempiternal heritage,
 And ever-changing, ever-rising still,
 Wanders in endless being.
 The other, for a time the unwilling sport
 Of circumstance and passion, struggles on;
 Floats through its sad duration rapidly;
 Then like a useless and worn-out machine,
 Rot, perishes, and passes."

The lower animals possess many faculties in common with man—feeling, perception, even thought and will—but a more elaborate cerebral organization in the latter is quite sufficient to account for the enormous difference in their relative capabilities. The superiority of the human being over the beasts that perish, has been accounted for by physiologists, simply by this greater development of the brain and nervous system, and the greater multiplication of their parts. It must be wrong, therefore, to apply the term soul to express this superiority of the being to whom has been given dominion, for the soul is a "piece of the Divinity within us, something that was before the elements, and owing no homage to the sun." It is the knowledge by which the idea of a Supreme Being is innate within us—"the inner life with God"—

admitted

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admitted as well by savage as by saints—the instinct by which we feel we are immortal—quite different, from anything that is intellectual—and must be, as was believed by Plutarch, an emanation from Deity itself—implanted in us ab ovo. Having thus very briefly endeavoured to state what I conceive to be the difference between the human mind and that Spiritual Essence which we call the Soul, I shall now proceed to treat my subject in the sense which applies to the action of chloroform upon that mind; and these effects will be found to vary, according to the varieties in the temperaments, tendencies, or training of those experimented on.

The superintendent of the Morning-side asylum in giving his experience of its action upon diseased minds, says:—"It gave rise to talking, and the ideas, with the females, at least, ran chiefly on amorous topics." Notwithstanding the authority, and my great respect for Dr. Spae, I am inclined to think this a hastily expressed opinion, given without sufficiently taking into consideration the previous habits and character of the patients who were brought under its influence in his Asylum—

1. Principles of Surgery. p. 767.

2. Ibid. p. 773.

asylum - an opinion, in fact, which I am sure his
 later experience must have confirmed. Professor
 Miller, on the other hand, declares, that "Anaesthesia
 duly managed, does not occasion immorality in
 speech or behaviour. (1.) If the patient be, which
 is technically called "turned over" as speedily as possible,
 this may be so in many instances, but not in all;
 and it may be noticed, prior to an operation, and
 during administration, that one patient will possibly
 give vent to an oath or a song, whilst another will
 commence a very devout prayer. The majority,
 it must be allowed, go to sleep and "make no
 sign", and as the effects pass off, will even declare that
 they have not been under the influence of the
 anaesthetic. Instances are on record where such persons
 had to be convinced by the surgeon pointing to a mutilated
 limb upon which he had been operating. (2.) I
 have read somewhere, (but cannot, unfortunately, give a
 reference) the case of an individual who, by an ex-
 traordinary accident had lost a portion of his skull,
 without the brain or its membranes sustaining any
 injury. The medical gentleman called upon to
 attend him, had the curiosity upon one occasion,
 to place his finger upon the dura mater, when the
 patient became utterly motionless and unconscious;
 but

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but the moment the prepure was withdrawn, he proceeded to the execution of what he had intended previous to the interruption. Subsequent experiments were made of a somewhat similar nature, when it was found, that if he were talking when prepure was applied, upon its withdrawal he would take up the thread of conversation precisely where it had terminated. A book being placed in his hand, he was desired to read: he commenced to do so, when without warning a thumb was placed upon the cerebral coverings, and the reading ceased, only to be resumed upon withdrawal of the operator's hand. It is a fact worthy of record, and may depend upon the paralyzing influence of the drug, that precisely the same thing sometimes takes place in anaesthetised patients; and they are frequently incredulous if told they have been asleep, and can only be convinced by the experimenters abstracting trinkets or clothing from their persons during the unconscious state. What influence the aspect of a crowded theatre may exercise upon the minds of those about to submit to an operation, I do not pretend to say, but in ordinary circumstances I think it highly probable, that according to the bias of the individual, or the train of thought (it may have been suggested) previous to administration, we shall be enabled to observe all

all the gradations which intervene between "le petit mal" and "le grand mal" of mental phenomena; in fact we shall produce and be able to observe every possible variety of temporary insanity: and, inasmuch as each subject will be found endowed with varying powers of intellect or memory; various hopes or aspirations; so the effects of this wonderful agent we may expect to be, to develop and expand, may, to exalt intelligence or delusion, or to depress and obliterate them. In minds where there is a latent tendency to disorder, especially in that form of disease known as *Monomania*, all its modifications may be noticed: the devout will assume the attitude of; even give utterance to prayer; the Bon-vivant will sing or conduct himself as at a carouse; the Erotic will declare his or her partialities without reserve, and discourse eloquently of love; and the Combative or Homicidal will very likely make a display, which it were well to be prepared for by the presence of a competent poor comitatus.

And again, as in the delirium of fever, or the raving of mania, a forgotten language (*Hypermnesia*, or unusually heightened memory) or a corrected bad habit are sometimes reproduced, so is it possible to induce the same phenomena by the employment of the substance now under consideration. Tendencies
hitherto

hitherto unsuspected, or totally at variance with all preconceived notions of the individual, may be made evident - & the astonishment, often at the personal risk of the experimenter. Some time ago I was favoured by a country practitioner of some experience, with the recital of a case in point: the subject a female, who for her station in the social scale, was remarkably modest and circumspect in her life and conversation, but who, upon the administration of chloroform, suddenly gave utterance to indelicate and obscene language, and made a furious and indiscriminate attack upon those assembled in the apartment. Her epithets consisted chiefly of selections from the vocabulary of the persons with whom she lived and associated - the terms were those she had been accustomed to hear, but was never before known to use. These, be it observed, are far from being the invariable results of experiments upon women, although it must be admitted that such experiments sometimes

"Force her not only to reveal,
But to repeat what she would most conceal."

yet, on the other hand, I cannot depart from the
opinion

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previously expressed—and to the honour of the sex be it
 recorded—that temperament and training will not
 be overcome, even by Chloroform, and in the conduct
 and communications of the modest and meek-minded
 female, we shall witness nothing that is gross or
 indelicate. Dr. Simpson is very positive upon
 this point, and justly indignant at the repeated
 assertions of some practitioners in London "that
 obstetric patients under the influence of Chloroform,
 must be liable to talk and act grossly and
 obscenely. In his "Report on the early history and
 progress of Anaesthetic Midwifery," p. 19, he thus replies:
 "This objection to the practice of Anaesthesia in Midwifery
 has been repeated and gloated over by those who
 have propounded it, in a way forming, apparently
 unconsciously on their own parts, the severest self-
 inflicted censure upon the sensuality of their own
 thoughts. An impure mind, more especially in
 a professional man, may easily fancy and find
 impurities where none whatever exist; but he
 is not on that account entitled to imagine that
 his own lewd thoughts are typified in the
 thoughts or actions of his patients. In answer
 to the objection itself, I have merely to observe,
 that I never witnessed any trace of any indecency;
 either

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either in word or action in any obstetric patient under the use of chloroform, and the evidence of one and all of my obstetric brethren, at whom I have inquired on the subject here, is to the same effect."

From the authorities quoted, it would appear that the most conflicting opinions are entertained as to this particular and very important manifestation. To speak that lewd thoughts or indecent expressions are never induced or elicited, once for all I may be allowed to state, that my impression is contrary; I declare, on the other hand, that they are the inevitable consequences, is worse still. With Dr. Simpson, I entirely repudiate the idea. As to suggestive ideas, or the peculiar occupation of the mind before inhalation, tending to particular manifestations, I may mention as an illustration going to prove this, the well-known and oft-quoted assertion, that peculiar trains of thought before going to sleep, suggest the dreams which are to follow. The same thing holds good of anaesthetics generally, and if it be true, as Dr. Shae supposes, that females are more talkative than males, it is because they are more sensitive to

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to the operations of a variety of moral impressions, and therefore at such times, more than ever susceptible to incentives from without.

In stating my impression that the stimulus of phreiform calls into activity ideas, which in a great number of instances may be termed morbid, it may be expected of me first to define mind, or at all events to state where I would draw the line of demarcation between its sane and insane manifestations, for according to Cabanis, "Pour connaître l'homme malade, il faut connaître l'homme sain:" but as the human mind is as diversified as the countenance—of the myriads created no two being identically alike—and as it has never been determined with what degree of mental disturbance insanity commences, I must at once, then, declare this to be impossible; the difficulty being similar to that encountered by the naturalist in his attempt to discover the exact point separating the vegetable from the animal kingdom. The first axiom in Euclid teaches us that Mathematics have no material existence, but that they may be demonstrated by diagrams. To a certain extent the same definition is applicable to that immaterial principle the Mind, and

and a poem or play may be a tolerable reflex or diagram of the mental condition of the author at the time of composition; although, again, no great depth of acumen is necessary to distinguish between the mad dramatist (H. Lee) who wrote almost in the dark in his cell at Bedlam, calling upon Jupiter & "snuff the moon," and the blind poet of "Paradise Lost." In the one instance we detect the state of mind—or rather its wreck—which has been admirably described as "broken into fragments, which are thrown up in wild confusion by the flood," in the other we notice that all is health and beauty—the manifold ideas combined, coherent, coherent. Any one almost can decide in a moment on the beautiful, the intellectual, or the repulsive among a crowd of people, but inasmuch as no one has yet been able to determine wherein what is termed plainness of feature terminates, or beauty begins; so no man can come to an accurate conclusion as to what may be considered the line separating the perfectly healthy from the slightly tainted mind—some being

"—By nature pitched too high,
By suffering brought too low."

Keble.

It is in vain to advance, by way of explanation, the verbal fallacies,

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fallacies, that Beauty is Perfection in everything, or that this or that mind was or is healthy, strong, perfect. In both instances it is simply a matter of degree, and will stand the test of superiority only by comparison with objects less, or other minds less nicely balanced. The individual (Haslam) who first advanced the proposition that "we are all more or less insane," deserves credit more for epigrammatic smartness, and a keen perception of men's failings, than for a correct or satisfactory solution of the problem.

It must be understood, then, that without pretending to determine when the first step towards Insanity has been taken, or how its primary manifestation is to be decided on, I entertain the opinion, that the administration of chloroform and many other substances, by being introduced into the stomach or lungs, or even injected into the rectum - and thence conveyed into the minute blood vessels ramifying in the brain - carried to a certain extent, will produce the most extraordinary mental phenomena both in the sane and the insane - in the former inducing virtual although temporary insanity; in the latter causing an aggravation of the habitual phase of the malady - actually bringing prominently forward

1. Ninth Annual Report of the Brighton Royal
Institution for Lunatics. p. 23.

forward the characteristic hallucinations and peculiarities of the patients. I shall subjoin a few cases illustrative of this from a report published by (Dr. W. R. F. Browne, of the Brighton Royal Institution for the Insane, *Surmises*, and those effects I had the opportunity of witnessing at the time the experiments were made, as I had then the privilege of being his pupil and assistant. He introduces the subject by very properly observing: "As it is a duty that all new and powerful agents should be tried in the treatment of a disease which so often defies the ordinary resources of medicine, Chloroform was employed in certain cases therapeutically, and in others experimentally. Loss of sensibility was observed in the great majority, but the subsequent and subordinate effects differed widely; but of twelve cases, in some of which inhalation was repeatedly practised, notes were taken and may be epitomised." (1.) From this epitomisation I shall select only the most striking cases, making such additions from my own note-book, of matters jotted down at the moment, as I may deem interesting or important. The first I select is No. 10, of Dr. Browne's list: "A Melancholic, subject to paroxysms of acute mania. The Chloroform was used when the excitement was present. In the first instance there was insensibility

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insensibility and loss of consciousness, succeeded by complete restoration of reason, which continued for some hours; in the second, insensibility, loss of consciousness, and convulsions, which were again followed by a short lucid interval, and in the third and subsequent trials, the results were unsatisfactory."

This quotation is doubly interesting to me from my remembrance of the patient. Ordinarily he might be observed walking slowly along the gallery of his ward, with folded arms and downcast countenance, or traversing the rising grounds, apart from his fellow-patients, with averted head. If spoken to or interrupted in any manner, his countenance immediately assumed the aspect of despair, his voice the tones of supplication and prayer; at the same time might be detected the greatest amiability combined with the most retiring modesty. His affectionate nature was touchingly manifested by his solicitude for, and when opportunity offered, his attention to an imbecile brother whom he had accidentally discovered as an inmate of another wing of the establishment. This, a painful but interesting phase of his affliction, was usually succeeded by one still more distressing. From the extreme of Melancholia would be witnessed the

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the sudden transition to actual Mania Furibunda.

He would then attack his attendants, or give vent to the most ludicrous language and mimicry - his prayers converted into preposterous quotations from Shakspeare and other authors; his aspect and attitude of despair into those of defiance or derision. I have often thought of the extraordinary action of Chloroform upon this man, and the question has arisen in my mind - If the patient, when in a condition of Mania, upon inhalation, sunk to the extreme of Melancholia, would he, upon the test of a converse experiment, have been raised from depression to excitement? Unfortunately for the inquiry he was not put through the ordeal, but my own impression is that such would have been the result. On the other hand, it may be, that the restoration to reason was the natural consequence of a direct anodyne influence and subsequent sleep. It is curious to observe, however, that this peculiarity diminished upon each successive administration, and was finally reported as being altogether unsatisfactory as to the effects produced. Now, just as we see in the use of alcohol, that the vagaries of a confirmed drunkard are not to be compared to the grotesque and startling exhibition which characterised his "maiden effort;" so the repeated use of Chloroform and

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and other narcotics (examples being numerous enough in those who habitually indulge in them) will at length prove comparatively effete - unless, indeed, the dose be increased - habits blunting the susceptibilities of the body and mind & the influence of the stimuli.

The second case, "A convalescent who became inebriated and affected by a dancing mania," is also interesting as illustrating the reproduction of madness. The patient so described, when he had inhaled about two drachms, immediately evidenced the symptoms characteristic of the disease for which he had been under treatment - dancing and an irresistible inclination to destroy everything within his reach. This man was by habit and repute, a drunkard, when at large; and doubtless, in the condition of one just recovered from an attack of acute Mania, it may be naturally inferred that similar symptoms would have attended his first debauch after his discharge - the slightest acceleration of the circulation in the brain, disturbing the cerebral functions in the manner described. Could this person's education or natural common sense have rendered him capable of taking advantage of the warnings which his frequent indulgence must have afforded, he might

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might possibly have forewarn stimuli; preserved his character, and very likely never have become the inmate of an asylum—a self-made lunatic.

I might extend my selections and illustrations from the said list, and all to the same purpose. For instance: No. 7, "A maniac: schizoid in the predominating delusion." No. 12, "A religious melancholic, followed by aggravation of the habitual despair." No. 5, "A partial imbecile: the effect a more rapid ejaculation of the letters K. E. D., which he is accustomed to repeat." This unfortunate individual lost his reason upon hearing of the sudden death of a beloved friend, the Rev. John —, and I believe from that moment, he was never known to utter a word, save to spell, letter by letter, the title and name of his lost friend and pastor. Strange, that even under the influence of chloroform, nothing should have been elicited from him but a more rapid iteration of the "oft-told tale."

I have been more particularly induced to cite these examples, as they all came under my own observation—they tend to secure the ground of my position, but need no further expatiation upon my part. Dr. Brown seems to have doubts as to the efficacy of chloroform

Chloroform as a therapeutic agent, and concludes his remarks on the subject by saying, "It would appear from these observations, that Chloroform exerts less power over the nervous system of the insane than over that of the sane; that it may aggravate excitement, even develop a paroxysm of fury; and that in violent mania, where the benefit of such an agent would be particularly desirable, where tranquillity and rest are the great objects of remedial measures, it will be necessary to conduct the exhibition with great caution, and with the constant recollection of the tendency to congestion which exists in the insane, and which narcotics occasionally appear to produce or aggravate." In some of the continental hospitals for the care and cure of the insane, however, they would seem to have set aside these objections, and administer the substance to a degree almost approaching repleteness. Dr. Solbrig, (Erlangen, Bavaria) uses it not only to calm violent paroxysms of mania, but as the mildest means of coercion; and boldly avants that it was triumphantly used upon a patient who had obstinately refused to have his hair cut.

Upon the plea that it is injudicious and dangerous to resort to Chloroform as an experimental agent,

agents, sneers, taunts, and opposition have been launched
 against the inquirers who would dare to use it, yet
 I imagine that not only this but many other substances
 might be justly generally employed in Psychological in-
 vestigations, and prove very efficient, both in testing
 the reality of suspicions, and bringing more readily
 under treatment, difficult cases of insanity. As a
 remarkable instance of its efficacy in determining a
suspicious case, the following instance may be adduced
 as apropos:—I was anxious to test the sincerity of a
 suicidal melancholic, and for that purpose presented
 her with a handkerchief whose folds were properly
 saturated with Chloroform, giving the patient to
 understand, at the same time, that inhalation of
 the perfume might possibly effect the object she had
 threatened to attempt by other means. Nothing
 could equal her expressions of surprise, delight, and
 gratitude. She first offered up a hurried prayer, then
 seized the kerchief, and in due time, relieved herself of
 a life which for years had been wretched, miserable,
 unbearable. Her disappointment upon coming out of
 the anaesthetic state was great—even painful to witness,
 and for a long period the officers of the establishment
 were importuned for a repetition of the experiments.
 Whether she thought a second trial would be more
 successful,

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successful, as longed again to experience the delightful sensation, which it was evident from the expression of her countenance she felt, could not be determined. That the desire and determination to destroy life upon the first opportunity were real and not feigned, was henceforth a settled point.

In the Annual Report of the Penitentiary Asylum for 1849, Dr. Magawin gives an interesting account of its use in what might be termed a dangerous case, from the patient having obstinately refused food. Recourse was had, as is usual, to the oesophagus-tube and stomach pump, but it was discovered that by bringing the individual under the partial influence of chloroform, he would "eat and drink heartily everything put before him, laughing and cracking jokes the whole time, and shaking hands with the doctor and clergyman who happened to be present at the time, and whom he had previously viewed with the utmost suspicion and dislike." The change produced in the mental condition of the patient by this experiment, was further described as being most gratifying.

Physicists yet hope to succeed in localizing
the

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the faculties of the mind, (a result I am not sanguine enough to expect) and where they can thus decide on the seat of a faculty, to be able, if it be disordered morally ^{or} ~~and~~ physically, to restore it by some local remedy at or near its seat. By phrenologists I must be understood not to mean the fortune-telling craniologists who pretend to decide upon moral or immoral character and intellectual power, by the external configuration of the skull; yet who, at the same time, maintain that it is essential for them, before drawing positive inferences, to be made acquainted with the state of health, constitution, and education of the individual—these are not the persons I refer to, but the men who maintain that Memory and Mental power are in direct proportion to the size and quality of the healthy brain—the size determined, as first suggested by Desmonville, by the number and depth of the convolutions—and who further entertain the opinion, that if each moral sentiment and intellectual faculty, &c., has a particular place or position in the brain, it must be sought for in the course of the convolutions, and not placed upon the cranium, like a country on a map, after the manner of Gall and Spurzheim. Should such a desirable end as localization ever be

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be attained, we may expect a wonderful advance in our knowledge of the nature and operation of many substances upon the brain as the habitat—or rather, I should say, whose function it is to manifest—Mind. But unfortunately for the theory, the number of the animal propensities, the moral sentiments, and the strictly intellectual faculties cannot be determined; no two metaphysical authorities agreeing in these most essential points. The Humoral Pathologists, who refer all diseases to vitiated blood, look upon the aims of Phrenology as altogether Utopian, and contend that we must consider the blood the seat as well as the vehicle of Mental disease; they also venture to assert, that if there be no mal-assimilation of the elements composing it, there will be no insanity. To such persons, the study of the manifestations of the mind under the influence of Chloroform, should be of intense interest. There are others, again, and they comprise the class who make man "the jest and riddle of the world," ask us to explain how it is that certain extraordinary mental phenomena follow peculiar conditions of the body. For instance in consumption, they say, the mind is endowed with cheerfulness, hope, happiness; (hyperoxygenation of the blood being the cause assigned by physiologists)—in disease

disease of the liver with insubility and despondency; (except of course, again joining the above-quoted authorities:)- but that a healthy digestion tends to infidelity and the gratification of the sensual appetites. That, there is a show of truth in such assertions cannot be denied; but when we consider that all the organs of the body are kept in sympathy with the brain by the nervous system, the explanation is easy enough, for of course the brain must suffer in its manifestation if disease be reflected upon it from any other organ - the converse of this, however, being the case, should there happen to be a constant transmission of a nervous current from it to any other organ; a change taking place in the condition of its nutrition, and so inducing actual disease; hypochondriacs frequently suffering from ailments which were all first imaginary. (Dr. Andrew Combe, in his work on Mental Derangements, p. 145, states that "both Bayle and Broussais have remarked, and with much appearance of truth, that when cerebral disease springs from irritation in remote organs, such as the stomach and liver, the mental delusions resulting from it have a direct relation to the functions of these organs;" and cases are cited, where for example, ulceration of the stomach gave rise to the

the dread of prison, & refusal of food, to melancholy and even to suicide as a means of escaping from prison. Hence the above peculiarities, some of which, especially intemper and humor, are often completely dissipated by a blue pill and black draught. Such, then, are some of the theories advanced to account for, and some of the hopes entertained, by which these many curious manifestations, commonly known under the general name of Insanity, may be investigated and removed. That Chloroform and other agents may assist us in prosecuting such studies, it has been my endeavour all along to point out.

Inoué (de Tours) in his admirable work, "*Sur l'Alcoolisme, et de l'Aliénation Mentale*," thus speaks of his hopes as to what that drug is to effect in the elucidation of the causes of Mental Diseases. "I have seen in Alcohol," he says, "or rather in its action on the moral faculties, a powerful and unique agent for the investigation of the causes of Mental disorders, and feel convinced that if we may yet be able to trace the mysterious origins of those affections of the mind—so numerous, wonderful, and varied—which we usually class under the collective name of Insanity." (1.) Notwithstanding the fact, that this volume

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volume was published in 1845, two years previous to the
 discovery of the properties of chloroform by Dr. Simpson,
 I am inclined to object to the term "unigue," which he
 uses, for it is very well known that many mental
 phenomena analogous to those described by the author as
 elicited by Indian Hemp, are the usual and common
 effects produced by Opium and Hyoscyamus. What
 I wish more particularly to observe is, that if such sanguine
 expectations be given forth in connection with "Hachisch,"
 may we not look to chloroform as an agent of still
 higher promise? But to proceed with Moreau, whose
 work well repays perusal, and who goes on thus:—(p. 34.)
 "Hachisch, by its mode of action on the mental faculties,
 enables the person who submits himself to its wonderful
 influence, to study on himself the moral derangements
 of insanity, or at least the principal intellectual
 modifications from which all the varieties of lunacy
 arise;" and again, at p. 35, "There is no elementary
 act or constituent of insanity which is not met with
 in the intellectual modifications developed by Hachisch,
 from the most simple maniacal excitement to the
 most furious delirium; from the most feeble and
 sickly impulse, the least complicated idea, and the
 most trifling lesion of sensation, to the most irresistible
 impulses, the partial or complete delirium, and the
 most

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most varied disorders of sensibility." I have never placed myself under the influence of *hannabis Indica*, but I have received undoubted corroboration of the above statements from the experiments of others; yet from the vertigo which invariably follows the administration of a large dose, and the known tendency which the drug has to the brutalization and confusion of the intellectual faculties, I should be induced, in prosecuting such studies, to prefer Chloroform, as an agent far safer, speedier, and infinitely more pleasant in its operation. The intensity of the effects produced by the *Hachisch*, will depend very greatly upon the quantity taken; whereas, with Chloroform, if we go beyond a certain stage, complete anaesthesia prevents the possibility (carefully administered of course) of an over-dose being taken, and at once puts a stop to the inquiries. Moreover, although as a stimulus it excites the mind to increased action, there is not that consequent depression, so common as the sequelae of narcotics generally.

In investigating the many curious Psychological manifestations induced by the administration of the substances we have been considering, we must not forget that the individual, in many instances, is not altogether

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altogether unconscious of what he is doing, and upon coming out of a condition so induced, will have a vague and ill-defined recollection of what occurred during such a trial, although volition may have been in abeyance and utterly powerless, perhaps under the direction of the experimenter or others. It may also happen, that should the person experimented on, be endowed, as many are, with a considerable amount of cunning, or love of fun, frolic, and mystification, that he will for the gratification of these propensities, simulate a condition not the effect of the agent, and pretend to be more or less affected, according to the purpose he may wish to subserve, on the individuals he may be called upon to flatter or dupe by such acting. Of such unfair colleagues in our investigations we should be chary, on the vires credulæ upon which many of us are too apt to pride ourselves, may be grievously compromised. (Dr. Munn, in his recent work on insanity remarks: "There can be no doubt that sensibilities are much decreased as consciousness (in the ordinary sense) lessens; as we may know from the testimonies of persons under the partial effects of chloroform, who declare both during and after the influence of the agent, that they perceive and

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1. *Notes on Insanity* p. 5.

and know everything that is going on, though their sensibility and perception are much deadened." (1.)

Confirmatory of this assertion, I may mention a case in point, which occurred to a graduate of this University, (Dr Adam,) who, to avoid the agony usually consequent upon the extraction of a molar, was brought under the partial influence of Chloroform, and although he was so far anaesthetised as to render the operation painless, he was yet perfectly able to notice and remember all that went on in the apartment.

I differ from these gentlemen, however, if they suppose this to be always the case, for who can possibly imagine perfect consciousness to be compatible with the ridiculous displays we so frequently witness.

As a diversity of opinion arises, however, I may exemplify the subject still further by reference to the observations of M. Bonifon in regard to the exhibition of Ether. He establishes four categories under which he arranges etherized patients, viz:—1. Those who suffer and preserve their intelligence. 2. Those who lose all sensibility with their intelligence. 3. Those who preserve their intelligence without suffering. 4. Those who in spite of the loss of their intelligence, appear to suffer. Applied to Chloroform, such a classification might be

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be extended, but the third head corresponds exactly with Dr. Monroe's supposition of retention of consciousness with loss of sensibility. As a remarkable instance bearing upon this class, the following curious experiment by Dr. Flagg, is given by Mons. Boissier:—"It had so frequently happened in my practice that my patients had expressed to me their utter impossibility of doing any way differently from what I directed them to do; as if, for example, they attempted to get out of the chair, my saying 'Sit still' to them, was a law too potent for them to think of breaking; or if they inclined to laugh, my suggestion of perfect quiet and calmness, was as instantly obeyed; it occurred to me to propose the following experiments. One of the ladies was to administer the ether to this gentleman, with the express understanding that he was to obey any direction she might give him under its influence, if by possibility he could do so. The ether was inhaled sufficiently to secure a painless operation had it been necessary to extract a tooth; and the lady immediately asked him 'What o'clock is it?' His hand was carried to his vest pocket to remove his watch; he hesitated a moment, and then carried his other hand to the same place. He soon

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soon changed his hands very rapidly in the vicinity of his watch, but did not take it out. Whilst doing so, the lady requested him to sing. The gentleman was known to possess considerable musical powers, but the noise he made resembled more the howling of a wolf than anything else I could liken it to. He then whistled almost as much out of tune as he sang, and getting up, made castanets of his fingers, waltzed around his chair, and resumed his seat. The other japed off. The gentleman jerk his hand to his head, and exclaimed, 'Oh, heavenly!'"

The explanation of the peculiarities of this case as given by the gentleman experimented on, I shall quote; more, certainly, as the completion of an interesting anecdote, and as displaying great ingenuity in extrication from what was evidently an awkward exhibition, than as a true exposition of the phenomena. "He knew everything that had transpired. When the lady asked him 'the time,' he was not prepared for the question, and felt somewhat confused, but recollected that he was to obey this lady. In feeling for his watch, it occurred to him, as he could

1. *Medico-Chimurgical Review*, Vol. XVII. pp. 169-170.

could not see, it would be folly in him to take it out, and he moved his hands about to indicate that folly. When requested to sing, he was equally taken by surprise, if not more so than at first, for he was not quite clear in his mind that he had complied with the lady's first requirements, or that she fully understood him. Still he felt a binding obligation to do his best.

What to sing, became now a serious question with him, and the noise he made was trying his voice. He was aware that there was no regularity or gradation of sounds, but could not help it. In the anxiety to obey, and finding he could not sing, he attempted to whistle. Here he was as much at a loss for a time as at first, when a lucky expedient presented itself: 'If I dance and keep time,' he thought, 'she must be satisfied that I have done all in the way of music it is possible for me to do.' And this gentleman attributes a large share of his happiness to being able to accomplish this dance. He likewise asserts that he knew of no one being present but the lady who administered the ether. (2.) The latter part of this statement I presume to be not at all unlikely, and the only portion of his

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his narrative at all & be relied on.

I have now merely & state what conclusions we are warranted to draw from the preceding remarks as to the main Psychological effects of Phosphorus, and I think there will be little difficulty, inasmuch as they are not only deducible from, but are the direct results of experiments:—1. That in the insane, the effects in the majority is to develop and bring more fully into play the predominating delusion or tendency peculiar to the various forms of the malady known as Monomania, Mania, Melancholia, &c. 2. That in the same its action is, to a great extent certainly, to elicit phenomena indicative of peculiar idiosyncrasy, temperaments, habits, &c., and 3. That at any time temporary insanity in its various manifestations, according to the dominant peculiarity of the individual may be demonstrated by it. If such be our conclusions, and if as (Dr. Brodie) supposes, "it be highly probable that in many cases of Insanity inappreciable changes take place in the blood; variations in its constituents, a foreign addition to them—gaseous, or saline, or metallic—and in some way excite, or depress, or disorder the nervous action;" may we not reasonably ask How,

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Now, in such cases, can the Psychological physician proceed better to the investigation and solution of these physical causes, than by having recourse to such aids as the microscope and minute chemistry afford him, in order to discover what these subtle pathological products are in the blood, which so alter the essential components going to make up the elementary tissue of the brain, as to produce the morbid phenomena we have been considering. This accomplished, he must then endeavour to find a material, which introduced into the system, will neutralise these elements, and so give him some power over the malady. For my own part, I believe it is only by carrying on a long series of observations such as these, that our knowledge of Mental Pathology (more especially as regards those cases alluded to by Dr. Bonally) is to be increased, and a means discovered by which we can reach the mind through its material instruments. I may practically illustrate what I mean by describing the case of a man lately a patient in the Royal Infirmary, with whose condition I was much struck at the time. I do not remember the precise disease for which he was being

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being treated, but I recollect that upon a careful microscopic examination of the urine, the octahedral crystals, characteristic of Oxaluria, were made out. The patient complained of great depression of spirits, and it was evident that it did amount, almost to the misery, but without any of the delusions of Melancholia. The administration

two or three times daily, of a few drops of the dilute Nitro-muriatic acid, was followed by the most beneficial results—causing the crystals to disappear, and with them the mental depression—the man's ordinary animation returned, and he was soon restored to perfect health.

Dr. Douglas MacLagan in his paper on the "Character of the Urine depositing Oxalate of lime," writes as follows: "If there be anything more established than another regarding well-marked oxalic urine, it is this, that it is always accompanied by a train of symptoms which point very decidedly to something wrong in the nervous system. Languor, inaptitude for the performance of duty or enjoyment of recreation, pettiness, and hypochondriasis, are among the phenomena which are presented." He also quotes opinions expressed, which tell of the "miseries which flow from the oxalic diathesis"—
that

1. *Monthly Medical Journal*. Vol. XVIII. pp. 484-5.

that from it sometimes "the bodily suffering is considerable, and the mental excitement verges on insanity." (1.) My argument, then, is this. If the presence of minute crystals of certain known forms, and eluviated by the wine, be sufficient to account for the depression, so to speak, of the nervous life, causing the uncomfortable and distressing states of mind spoken of above - and the microscope be sufficient to detect, and our knowledge of chemistry be competent enough to enable us to neutralise them, should not such a fact encourage us to institute a still more minute and searching analysis in all mental ailments, and with every probability of success? If by the assistance which Chloroform, Haichin, Opium, &c., have afforded us, any such advance be hereafter made, then, indeed, will the names of Soubeiran, of Liebig, and of Simpson be "twice blessed," inasmuch as their investigations and discoveries will have tended not only to the alleviation of bodily agony, but to the proper comprehension, and it may be to the cure of the "Mind (Diseased)"

W. B. Kingd.

Turn over.

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Vol. p. 105 I have alluded to the opinion entertained by many as to the happy state of mind enjoyed by consumptive patients, and to show how prevalent ^{it is}, I subjoin a couple of elegant extracts from the works of two living authors. The first is from the pen of H. P. Willis, Esq., of America, one of the editors of the Home Journal, and is to the following effect:—

"Consumption, mourned over as it is, seems to me a gentle muzzling of the torch of life, instead of the sudden and harsh tearing asunder of its threads by other disease—a tenderness in the destroying angel, as it were, which greatly softens, for some, his inevitable errand to all. It is a decay with little or no pain, insensible almost in its progress, delayed, sometimes, year after year, in its more fatal approaches. And it is not alone in this indulgent probering and deferring that consumption is like a blebbing. The cords which it first loosens are the coarser ones most confining to the mind. The weight of the material senses is gradually taken from the soul with the lightening of their force and the opening of their strength. Probably, till he owns himself an invalid, no man has ever given the wings of his spirit room enough—few, if any, have thought to adjust the ministrings of body and soul so as to subdue the senses

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senses & their secondary place and play. With illness enough for this, and not enough to distress or weaken - with consumption, in other words, as most commonly experienced - the mind becomes conscious of a wonderfully new freedom and pre-dominance. Things around alter their values. Estimates of persons and pursuits strangely change. Nature seems as newly beautiful as if a film had fallen from the eyes. The purer affections, the simpler motives, the humbler and more secluded reliances for sympathy, are found & have been the closest linked with thoughts bolder and freer. Who has not wondered at the cheerfulness of consumptive persons? It is because, with the senses kept under by invalid treatment, there is no "depression of spirits." With careful regimen, and the system purified and disciplined, life, what there is of it, is in the most exhilarating balance of its varied proportions. Death is not dreaded where there is thus a conscious breaking through of the wings of another life, freer and higher."

The other is by Sir Edward Bulwer Lytton, Bart., and although at a first glance, it would seem to apply to disease generally, it was written of consumption, and is as follows: -

But the illness of the body usually brings out a latent

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latent power and philosophy of the soul, which health never knows; and God has mercifully ordained it as the custom of nature, that in proportion as we decline into the grave, the sloping path is made smooth and easy to our feet, and every day, as the films of clay are removed from our eyes, Death loses the false aspect of the spectre, and we fall at last into its arms as a wearied child upon the bosom of its mother."