the originator has not published his views on the matter. It was not undertaken by me to restore sight—there could be no reestablishment of the function of a detached portion of the retina, as it is for ever lost—but to avert further effusion, and other mischief.

There is a great tendency for this sub-retinal dropsy to continue, till the whole retina is detached. This state would seem to be the result, or end of inflammation at the fundus of the eye, and most likely in this instance, of a subacute form.

Much labour and pains, and long observation are needed to enable me to speak with authority on the curative or beneficial effects of the operation, but I think there may be reasonable expectation of its arresting effusion, and by that, saving any undetached part of the retina. It is something, too, to remove the floating image that troubles the person.

By checking, too, further disorganisation, it is possible that much may be saved indirectly in some cases, in preventing sympathetic implication of the sound eye. This effect is not produced except the unhealthy eye pass into a state which is productive of pain, perhaps in paroxysms, but for the most part constant pain.

If we desire to improve surgery, any practical hints with any shew of reason should be worked out by those who have the opportunity, especially when no risk of untoward circumstances is involved. It is hardly possible to imagine any drawback to this mode of tapping the eye, or anything more than might attend a like operation on the front of the organ; I mean the puncture of the cornea with a needle to evacuate the aqueous fluid.

REMARKS ON THE USE OF DIGITALIS IN THE TREATMENT OF INSANITY.

By C. L. ROBERTSON, M.B. Cantab., Medical Superintendent of the Sussex Lunatic Asylum, Hayward's Heath; Editor of the *Journal of Mental Science*.*

DR. THOMAS MAYO, late President of the College of Physicians, in his Essay on the *Elements of the Pathology of the Human Mind* (London, 1838), has the following observation bearing on the subject which I am permitted to-day to bring before this Association. "The intention of sedatives", he writes, "is in every stage of the disease a wise one. By soothing the insane patient, we at once give him wholesome strength and reduce morbid action. Of all the medicines which possess this virtue, opium has been, in my experience, the least valuable, and digitalis the most so."

The experience of the last eighteen months of the use of digitalis in the treatment of mania, leads me to endorse Dr. Mayo's statement of its great efficacy as a sedative, as contrasted with the drug most relied on in our English practice—opium. In saying so, of course I do not impugn the great value of opium in the treatment of melancholia: I only say, with Dr. Mayo, that, as a general sedative, I prefer digitalis to opium in the various forms of mania.

Professor Garrod of King's College directed my attention, about eighteen months ago, to the probable advantage which might follow the use of digitalis in cases of cerebral excitement; and I have since then used several quarts of the tincture in my practice at Hayward's Heath.

I shall divide the few remarks which I am about to

make to-day, on the use of this drug in the treatment of insanity, under the three heads of—

- I. The History of the Use of Digitalis in the Treatment of Insanity.
- II. The Physiological Action of Digitalis on the Cerebro-spinal System.
- III. The Medicinal Use of Digitalis in the Treatment of Insanity.

I. *History of the Use of Digitalis in the Treatment of Insanity.* So far as I know, digitalis is not at present in favour, or much employed in the English asylums as a medicinal agent in the treatment of mania.

In Dr. Bucknill and Tuke's *Manual of Psychological Medicine* (second edition) the use of this drug is not mentioned.

In the *Lettsomian Lectures on Insanity*, the author observes that "in some forms of acute mania, as a substitute for depletion (*a substitute, by the way, for a remedy which is never required*), nauseating doses of tartrate of antimony may serviceably be combined with the tinctures of digitalis and hyoscyamus. . . . The tincture of digitalis", he adds, "was formerly in great repute as an anti-maniacal remedy; the experience of late years has not encouraged us in administering it in the doses prescribed by the old writers; nevertheless, it is an useful agent, and occasionally proves a valuable auxiliary in the hands of the practitioner who carefully observes its therapeutic operation."

Dr. Noble, in his *Psychological Medicine*, does not refer to the use of this drug in the treatment of mania.

On the other hand, I might fill many pages with extracts from the English writers of the earlier part of this century, on the value of digitalis as a remedial agent in the treatment of insanity. I believe Dr. Halloran, physician to the Cork Asylum, who published his work on insanity in 1818, was the first to direct attention to the value of this remedy. Dr. Burrows, in his *Commentaries on Insanity*, published in 1828, speaks favourably of its use. "In reference to the use and effects of digitalis in mania", he writes, "it will be seen that I have drawn copiously from the observations of Dr. Halloran. I confess, however, that I have not had such surprising success with it, in the cure of insanity, as he and his correspondents describe. I may not always have observed so strictly the essential and preliminary rules. At the same time, I have seen sufficient of its powers to have much confidence in them."

It is not a very profitable study, this search after the views of our predecessors in the treatment of insanity. The broad gulf of the restraint system lies between us and them; and I, for one, do not care to cross it. Moreover, their whole medicinal treatment was based on the theory of the inflammatory origin of insanity, and, worse still, on the value of the antiphlogistic treatment in this and other inflammations, and thus it is labour lost to follow them in their moral and medicinal empiricism, by the light of which they strove to treat the varied manifestations of the morbid mind. Indeed, the revelations of the state of Bethlehem in 1814, disclosed by the Parliamentary committee of 1815, of the treatment of acute mania by cold, hunger, blows, chains, and straw, effectually extinguish any remaining interest in the pharmaceutical means which the physicians of that hospital then brought to the aid of these moral agents.

It is only within the last twenty-five years—since the publication in 1839 of Dr. Conolly's first Hanwell Report—that medical science can be said to have had such a direct control of the treatment of insanity as to make the results of any value as guides for the future; and the fruit of the labour of these twenty-five years is worthily enshrined in our English *Manual of Psychology* by Drs. Bucknill and Tuke.

Again, the notices of recent French and German

* This paper was placed on the agenda to be read at the late annual meeting of the Association of Medical Officers of Asylums and Hospitals for the Insane, held at the Royal College of Physicians, July 9th, 1863. The important discussion which took place on the Reform of Bethlehem Hospital, prevented the reading both of Dr. Maudsley's paper "On Homicidal Insanity", and of these "Remarks on the Use of Digitalis in the Treatment of Insanity." I now print them here in the form in which I intended to have read them.

writers on mental science of the use of digitalis are slight and vague. Thus, I find that M. Marcé, in his *Traité Pratique des Maladies Mentales* (reviewed in the July number of the *Journal of Mental Science*) merely alludes to digitalis, saying that "by its special action on the heart, it moderates the activity of the circulation, and so may aid in reducing acute excitement"; and M. Dagonet, in his compilation (noticed in the same place), has a similar observation.

Griesinger simply mentions digitalis, with leeches and other sedatives, as of value in the treatment of recent mania.

In similar terms writes Dr. Maximilian Leidesdorf, the Lecturer on Psychology in the University of Vienna, in his recent work on the *Pathology and Therapeutics of Mental Disease* :—

"Opium and its preparations, which I have stated to be so valuable in certain forms of melancholia, is rarely serviceable, but often most injurious, in cases of maniacal excitement.

"Of the narcotics" (continues Dr. Leidesdorf) "which act directly on the nervous centres, digitalis is the one most to be relied on. It has this advantage, that its action can be kept up for a long period without danger, and that the pulse forms an accurate measure of the quantity to be given."

Dr. Erlenmeyer, in his *Essay on the Treatment of Recent Mental Disease*, merely says of digitalis that it is of value when there is increased action of the heart and cerebral vessels.

II. *Physiological Action of Digitalis on the Cerebro-spinal System.* The physiological action of digitalis is still undecided. The generally received opinion that it exercises a depressing influence over the action of the heart, and therefore leads to accumulation and coagulation of the blood in its cavities, has been questioned by Dr. Fuller, who, on the contrary, thus sums up his experience of the action of this medicine on the heart :—

"1. During many years, I have observed, that the cases of heart-disease most benefited by digitalis have been those in which the heart has been weak and dilated, and the pulse feeble and irregular. In these the pulse has become stronger, and steadier, and less frequent, under its action.

"2. In the only cases in which I have known death to occur suddenly during the administration of digitalis, the heart has been hypertrophied and firmly contracted. This may have been a coincidence; but, viewed in connection with the results of experiments to which I shall presently refer, it is, at least, a suspicious fact.

"3. Dr. Dickenson has pointed out (*Méd. Chir. Trans.*, vol. xxxix.), and I have repeatedly verified his observation, that digitalis, if given in full doses, induces violent uterine contraction, and checks uterine hæmorrhage; and, inasmuch as its action in staying menorrhagia and uterine hæmorrhage is permanent, it seems fair to conclude that it gives tone to the capillaries, and increases their contractility.

"4. This view is borne out by what I have long since observed relative to its action in arresting hæmoptysis; viz., that, whilst effecting the object required, it does not weaken, but rather increases the force of the pulse, though it lessens its frequency.

"5. When patients die of delirium tremens, the pulse is usually rapid and fluttering before death, and the heart is found weak, flaccid, and distended with blood afterwards. These are just the cases in which, on the commonly received doctrines as to the action of digitalis, the drug ought necessarily to prove fatal, and yet modern experience has shown that in these cases it is tolerated, even in excessive doses. My impression is, that its remedial action in these cases depends on its stimulating the heart, subduing its irritability, and increasing the tonicity and contractility of the heart and capillaries, so that the brain is better supplied with

blood, and the effusion of its more fluid parts, which gives rise to the "wet brains" of habitual drunkards, is avoided.

"6. It has been proved by experiments on animals (Dr. H. Jones) that when death is induced by digitalis, the heart is not flaccid and distended with blood, as is commonly supposed, but, on the contrary, empty, contracted to the utmost, and in a state of tonic spasm. All these facts confirm my view as to the action of digitalis; and if it is correct, its practical importance in relation to the treatment of cardiac dilatation can hardly be overestimated."

Dr. Arlidge, in his Report on Foreign Psychology (*Journal of Mental Science*, July 1863), gives the following summary of Professor Albers's researches on the therapeutical action of digitalis :—

"1. It reduces the pulse in frequency, but at the same time does not disturb the rate of breathing. Even when the heart is empty and brought to a standstill, the regularity of the respiration proceeds. 2. Alterations in the urinary secretion; an increased quantity of urine in the healthy, and a still greater augmentation when the drug is given in inflammatory dropsy accompanied by inflammatory irritation of the serous membranes of the chest and abdomen. It subdues the inflamed state of the kidneys, and restores them to their normal functional activity. In mental disturbance dependent on cerebral inflammation, especially of the serous membrane, digitalis exerts a remarkably curative effect when given after preliminary abstraction of blood and the use of antiphlogistics. 3. The solid constituents of the urine are increased in amount, and particularly the urea, as shown both by chemical examination and by an increase of specific gravity. This alteration in the urine becomes manifest, when the digitalis has reduced the frequency of the pulse and produced a feeling of lassitude. 4. Reduction of the temperature of the body, and its equalisation. 5. Vertigo, lassitude, debility, and moroseness, accompany the reduction of the pulse by the drug. The last-named condition is a remarkable symptom associated with the operation of digitalis on the system. 6. This medicine is applicable only to those cases of madness dependent on some inflammatory lesion."

The physiological action of digitalis is a subject which would well repay a carefully conducted series of experiments. Unfortunately, I am unable to contribute to our information on this part of the question. With neither the skill, leisure, nor opportunity, to conduct such observations, like most other physicians engaged in active practice, I am content either to apply to the cure of disease, the results obtained by the scientific research of others, or, as at present, to follow the teaching of empirical experience. So far is the art of medicine yet removed from the certainty and exactness of science. The following remarks by Dr. Pereira state, I suspect, all that is yet known of the physiological action of digitalis in the presence of cerebral disease :—

"Foxglove may prove occasionally serviceable by repressing excessive vascular excitement which sometimes accompanies cerebral affections. Furthermore, the specific influence of this remedy over the cerebro-spinal system may now and then contribute to the beneficial operation of foxglove. But the precise nature of this influence not having as yet been accurately ascertained, while the pathology of the above-mentioned diseases is involved in considerable obscurity, it follows that the therapeutic value of this influence can only be ascertained empirically."

II. *Medicinal Use of Digitalis in the Treatment of Insanity.* I wish now briefly to state the practical results of my experience in the use of digitalis in the treatment of insanity.

a. *Dose and Method of Administration.* With a whole-some fear of a coroner's inquest, I have not ventured on

half-ounce doses, and I can report nothing as to their effect. I believe they would be too much for the average stamina of our patients. I have never given more than drachm doses; and I have usually found two or three days of such doses three or four times a day brought on the poisonous symptoms of the drug, with intermittent pulse, great reduction in frequency, and oppressive nausea. The respirations were also reduced in number; and the specific gravity of the urine lowered, and, so far as I know, the quantity increased by the use, in drachm doses, of the tincture. Thus, in a case of general paresis, in the second stage of mental alienation, on which I made some observation last November, the following results were shown:—

	Hour and dose.	Pulse.	Urine.	Respiration.
November 15.	9 A.M. ʒj	81	1022	28
	12 NOON ʒj	67		26
	3.30 P.M. ʒj	76		28
	8 P.M. ʒj	69		26
November 16.	9 A.M. ʒj	81 intermit.	1009	26
	12 NOON.	Patient complained of headache and pain at cardiac region. No medicine.		
	2.30 P.M. ʒj	94 intermit.		30
	6 30 „ ʒj	80 „		26
November 17.	9 A.M. ʒj	80 regular	1017	29
	7 P.M. ʒj	72 regular		27

Under this treatment, all the maniacal symptoms present had yielded. The treatment was kept up with half-drachm doses twice or thrice a day for two or three weeks to the entire and permanent relief of all cerebral excitement.

This and similar experiments led me to fix my average dose of the tincture at half a drachm, although I often for the first few days of treatment give drachm doses. I have never given larger doses. I have always given it simply in water; and I have not complicated my observations by the admixture of any other drug.* The tincture has been supplied to me by Messrs. Taylor, of Vere Street, Oxford Street.

b. Forms of Insanity in which Digitalis has been employed. I have, during the last year and a half, exhibited digitalis in the form of the tincture in twenty to thirty cases of maniacal excitement, recent and chronic, with varying results.

First, as to the failures. In three recent cases of mania depending on uterine excitement, two in young girls and one at the change of life, I steadily pressed the use of the drug until its poisonous effects, as shown in sickness and vomiting and intermittent pulse, were produced. The dose given was, in each case, half a drachm of the tincture three times a day. The result was simply that the patients when very sick were quiet, and that so soon as the nausea passed off the excitement returned. Again, in two severe cases of recurrent mania, I only produced sickness and depression of the pulse and no amendment of the mental symptoms followed this physiological action of the remedy.

On the other hand, my success with this drug in cases of general paresis, in the second stage, that of mental alienation with symptoms of maniacal excitement (and in which so often in private practice aid is sought pending the patient's removal to an asylum), leads me to regard its action in controlling cerebral excitement as quite specific. I have, of course, had my share at Hayward's Heath of these troublesome cases—and how noisy and wearing they are every asylum physician knows to his cost—and they have ceased to give any trouble under the calming action of digitalis.

* In many cases of chronic mania, with sleepless noisy nights, I have found the following sedative mixture of value.

R. The ure digitalis, tinctura camabis Indice, liquoris opii (Taylor), etheris chloridi, singulorum uncias tres.
Dose—half a drachm, repeated at intervals of three hours.

It is with these cases of general paresis, in the stage of mental alienation with maniacal excitement, that the assaults and injuries in asylums (which from time to time unfortunately occur) arise. There is such a reckless violence present, on which no moral or physical obstacles make the slightest impression, and this stage lasts so many weeks, if not months, that any remedy at all capable of controlling this state of things deserves a most careful trial. And such a remedy I believe we possess in digitalis, continued steadily day by day, while the tendency to excitement lasts, in half-drachm doses two or three times a day, or oftener.

It acts in every case of the kind in which I have given it as a specific, calming the excitement, and enabling the patient to pass without wear or irritation through this stage of the malady. Its action has been to steady the pulse, and thus apparently to supply the brain better with blood, and so to obviate the tendency then existing to effusion of serum, consequent on the inflammatory process going on, as we believe, in this stage of the disease in the arachnoid and pia mater. The researches of Wedl, quoted by Dr. Salomon* in his able paper on general paresis, are conclusive as to the inflammatory process present in this stage of the disease.

In such circumstances the only visible result is mental quiet, and the action of the drug appears to be that of a cerebro-spinal narcotic. The functions of the stomach and bowels are not affected by its use; the appetite rather seems to improve. The pulse often remains unaffected for weeks under the use of half-drachm doses, and the only result is the specific action on the cerebral excitement. I have often found one day's intermission of the medicine bring on all previous symptoms of excitement. I have prepared a detailed history of six cases of general paresis which I have thus successfully treated. The limits of my present communication necessarily prevent my inflicting their detail on you; moreover, every member of this Association has such opportunity of testing the results of my experience, that it is sufficient for my present purpose thus generally to indicate the forms of insanity in which I advise the use of this drug.

I have also continued for many weeks with benefit to administer half-drachm doses of the tincture of digitalis in cases of chronic mania, with noisy and destructive habits. I have at this moment two such cases under treatment. In one the irritation is evidently depending on impending paralysis.

There is a third form of insanity—mania with phthisis

* K. Wedl has in every case of general paresis demonstrated an hypertrophy of connective tissue in the small arteries and veins in the pia mater and cortical portion of the brain. On the outer wall of the vessel is a hyaline, imperfect layer of connective tissue studded with partly scattered, partly grouped oblong or rounded nuclei. This layer of connective tissue, projecting over a greater or less extent of the vessel, undergoes, with the nuclei occurring in it, in the direction from without inwards (from the periphery of the vessel towards its centre) a fibrillar change. The veins of capillary structure cannot resist the pressure, but are also drawn into this process, and are completely obliterated, and changed to corresponding bundles of fibres. The abnormal layer of connective tissue not unfrequently serves as a seat of deposit for finely divided olein and amorphous calcareous salts, while in other places calcareous depositions take place in the inner elastic and muscular layer. The small and slender cerebral vessels thus calcified can, on section, be observed in the cortical substance as a number of needle points. Wedl endeavours to explain the adhesion of the superficial layer of the cortical substance to the pia mater by the penetration of the grouped nuclei in the adventitious membrane of the pia mater to a certain depth into the cortical substance. When the pia mater is separated, a layer of the softened cortical substance often accompanies it, corresponding to the depth to which the nuclei have penetrated. The complete obliteration of the calibre of the small veins caused by this degenerative process, demonstrated by Wedl, must give rise to a considerable obstruction to the circulation, both in the pia mater, and subsequently in the cortical substance of the brain, with consequent ischaemia; to stasis, pressure, irritation, and inflammation. All this produces a progressive aggravation of the cerebral symptoms, and disturbs the nutrition of the cortical substance. (Dr. Ernest Salomon, "On the Pathological Elements of General Paresis,"—*Journal of Mental Science*, October 1862.)

(not unfrequent in private practice also), in which I have found the occasional use of the tincture of digitalis of great benefit. This form of mania has been so exhaustively treated by Dr. Clouston in the *Journal of Mental Science* for April 1863, that this reference to its treatment will for my present purpose suffice. Time, moreover, warns me to bring my present remarks to an end.

[Since preparing this communication for the annual meeting of the Association of Medical Officers of Asylums and Hospitals for the Insane, my attention has been directed to a paper read at the thirteenth annual meeting of the British Medical Association in 1862, by Dr. Handfield Jones, and published in the *BRITISH MEDICAL JOURNAL*, August 23rd, 1862, "Some Remarks upon Remedies and on the Study of their Actions." I find some interesting remarks there on the several actions of digitalis in disease, worthy of note by any one interested in the use of this medicine. I believe there is also a paper by Dr. Christison on the action of digitalis, in some former number of the *Edinburgh Monthly Journal*. I have unfortunately not yet had an opportunity of consulting it.]

CASE OF PHTHISIS COMPLICATED WITH PNEUMOTHORAX AND ABSCESS, DESTROYING THE COSTAL CARTILAGES.

By W. G. GIMSON, M.D., Witham, Essex.

Phthisis; Pneumothorax on Right Side; Cavity in Right Lung, communicating with Right Pleura, and also with an Abscess formed to the Left of the Sternum, which burst, destroying the Cartilages and Portions of the Osseous Structure of the Second, Third, and Fourth Ribs. J. B., aged 23, in February 1861 laboured under an attack of typhoid fever complicated with pneumonia of both lungs. From this he partially recovered; the pneumonic symptoms were relieved; but he remained in a weak cachectic state, with signs of tubercular deposits in the apices of both lungs.

In August of the same year, after several pleuritic attacks upon the right side, with some pneumonia, the tubercles began to soften; and he expectorated a considerable quantity of thick purulent matter. Under good nourishment and medicines, his health improved, and he regained to a great extent his ordinary appearance as to flesh, etc.; still he gained little strength, and suffered from frequent attacks of pleurisy on the right side.

In the early part of January 1862, while labouring under an attack of pain in the right side, during the act of coughing, his breathing became very difficult; and, upon examination, signs of pneumothorax of the right pleura presented themselves. In the course of a day or two, a circumscribed red spot (of about the size of a shilling) appeared on the left side of the sternum, and rather to the upper edge of the fourth costal cartilage: this, however, gradually disappeared, and was succeeded by considerable swelling immediately over the costal cartilage of the third rib, and about an inch and a half to the left of the sternum. In the centre of this swelling was a red spot of about the size of a florin, with fluctuation beneath, a considerable amount of pulsation, and emphysema of the surrounding subcutaneous areolar tissue. Under the application of poultices, the skin gradually gave way. The tumour burst; and a quantity of dark, grumous, offensive pus, mingled with bubbles of air, was discharged with some relief to the dyspnoea, and followed by the cessation of violent vomiting, which had been of frequent occurrence since the appearance of the spot over the fourth costal cartilage. There were signs of lateral tubercle in the left lung, but no active mischief in that organ.

The patient continued in a state of hectic, and gradually sank exhausted on June 19th, 1862.

POST MORTEM EXAMINATION. The body was much emaciated. On the left side of the sternum there was a hole in the integument exposing the costal cartilage of the second rib. A probe introduced passed but a very short distance in a direction from the sternum; but, upon passing the probe rather beneath the left side of the sternum, it readily entered a sinus leading towards the right side of that bone.

On making an incision along the sternum, and reflecting the integument on each side, the muscles on the right side were hardly perceptible, partly owing to their wasted condition, and partly to loss of colour in the muscular fibre. The muscles on the left side, although wasted, were of good colour. Beneath and immediately around the opening in the integument above mentioned, there was an abscess involving the costal cartilages of the second, third, and fourth ribs. The cartilage of the second rib was only slightly implicated; but the portion of rib immediate to it was denuded of periosteum and carious to the extent of an inch and a half to two inches. The cartilage of the third rib was much destroyed, and a considerable portion of the rib was entirely gone. The entire cartilage of the fourth rib and about two inches of the osseous structure were destroyed and gone. The sternum in the vicinity of each of the above named cartilages was more or less implicated.

The abscess, apparently about three inches laterally by four inches longitudinally, contained a quantity of offensive, dark coloured, purulent matter; and, upon examination, was found to be external to the pleura of the left lung, the wall being formed by a dense unyielding tissue, save at a part about the junction of the third costal cartilage with the sternum, where the probe passed readily in a direction upwards, beneath and towards the right side of the sternum.

On reflecting the sternum carefully, it was found that a thin flap of the right lung was very firmly adherent to its posterior surface. The portion of lung was riddled with softened tubercle, and the probe was found to have passed along a sinus leading to a cavity which communicated with the right pleura.

The upper portion (about two-thirds) of the right lung was destroyed by softened tubercle, adherent to the costal pleura, and riddled with cavities; while the lower portion was collapsed and lying close to the spine. The pleura, on its pneumonic and costal surfaces, was covered with a thick, yellowish brown, purulent matter. The upper part of the left lung was thickly studded with tubercle in a latent state.

DEATH FROM CHLOROFORM. At the London Hospital on Saturday last, an inquest was held on John Savage, aged 41 years, a mariner, who died from inhalation of chloroform. The deceased had a compound fracture of the right arm, not connected with the joint; and the joint was to be excised. Two drachms of chloroform were administered to Savage, who took it very well at first; then his pulse became feeble. Galvanism and other remedies were applied for half an hour, but with a negative result, and deceased died. Mr. Spence said that the *post mortem* examination showed the heart was fatty and weak in structure, but no examination during life would have discovered that fact. The jury returned a verdict that the deceased died from the administration of chloroform, and that it was properly administered.

EUROPEAN TROOPS IN BURMAH. It has been decided that in future, European troops may be safely sent to Rangoon without any previous sojourn in India.

ALLEGED UNHEALTHINESS OF MADRAS. The mortuary returns show, that for some reason or other, Madras is yearly becoming a more unhealthy residence.