connexion be noted that, going through the lock, as I generally did alone, it was easy for me to regulate the taps to meet my own comfort; but when thirty men went through together it is probable that the tympanic membranes in some of them were considerably stretched.

In the matter of decompression there was no discomfort at all, and therefore, as far as the men could understand, there was no reason why this process should be prolonged, especially as they were packed like herrings—sometimes thirty-two men in a space of 470 cubic feet. It only required one devil-may-care man to get in charge of the tap, turn it on to its full capacity, and bring them all through at a dangerous rate. I have been decompressed myself—a foreman at the tap—at the rate of one and three-quarter minutes for 15 lb., and this in face of my instruction that the decompression rate of one minute for every 5 lb. should be enforced. As a matter of fact, the conditions in the lock were so unpleasant—a confined space, no seats, a dense vapour, and overcrowding—that every minute seemed like five. To reduce the number of men entering the lock from thirty-two to sixteen was a matter of no small difficulty, and caused some friction. Further, one of the principal officials informed me "he thought that decompression should be conducted as quickly as it could be done." This opinion he was, of course, unable to support by any convincing reason, but no doubt the expression of such a view would largely influence the workmen if he opened his mind to them as freely as he did to me.

For this, that, and the other reason, decompression was conducted at too rapid a rate if our present knowledge of the subject is correct—a danger that can only in practice be avoided by providing larger, more numerous, and more comfortable locks, these being fitted with taps carefully timed. Taps might even be made to conduct the graduated stage decompression recommended by Haldane, but the great practical difficulty is found in the workman himself.

I select a few of the more interesting cases, in the hope that, even with all their imperfections, the notes may be of some value to those studying the subject.

CASE I.

A. F., aged 36, entered the tunnel—then under a pressure of about 16 lb.—at 6 a.m., worked as usual till 2.30 p.m., and came out. He had left the lock about ten minutes when he was seized with acute pain in the abdomen, knees, and ankles. He re-entered the tunnel, and immediately felt quite well; he asserted that he "instinctively felt" that such a relief would be obtained. He walked about for an hour, and, believing himself to be all right, he passed through the lock again. On his way home the pains returned, causing him to retrace his steps for recompression, which this time relieved the abdominal pain, but left the pains in the knees and ankles unmitigated. At this stage he was examined, ergotin was injected, and he was placed in the medical lock under a pressure of 16 lb. The pains had subsided into numbness, the pulse was 60 and compressible, the temperature normal, the tongue clean, and the signs in joints negative; the superficial veins in the legs were somewhat congested, and there was impaired sensation to pin-pricks. The recompression was maintained for half an hour, and slowly reduced. The sensation he then declared to be normal, but the legs were still numb. As he lived close at hand he started, between two of his mates, to walk home, refusing the aid of a cab or other conveyance. He dragged his right foot, eventually catching it behind the left heel, and would have fallen if unsupported.

Seen at his home next morning, his pulse was 60 and the temperature normal. The paresis of the legs was more marked in the right, the superficial veins were still congested, the right leg was markedly dragged, sensation to pin-pricks was normal, but heat sensation was diminished; the knee-jerks were exaggerated, especially in the right leg; the heart sounds were normal; there were no signs of syphilis or other constitutional disease.

He was confined to his home for ten days, and then got about with the aid of sticks, but with great difficulty, his right leg still dragging. As massage and faradism failed to improve this state of affairs, he was admitted to the Hospital for Epilepsy and Paralysis on December 21st, 1906, three months from the date of his attack. He left the institution on December 24th at his own request, and refused to go back. When examined on June 1st, 1907, he was still obliged to use a stick; there was some wasting of the thigh muscles generally in the right leg and the limb was still dragged to some extent.

I give this case as one to my mind typical of compressed-air illness, and it was at the same time the most serious of those that came under my notice.

CASE II.

G. S., aged 45, on July 16th, 1907, on rising from bed at 4.30 a.m. experienced a slight pain in his left hip. He went to work, and seemed worse on passing through the lock into the tunnel; by 8 a.m. he was in so much discomfort that he went home. As there was no improvement during the day, he returned to the works, and was placed in the medical lock under a pressure of 16 lb., which was allowed to leak out. This was repeated several times, with complete relief, but the pains returned on the way home.

The knee-jerks were slightly exaggerated and the left leg dragged; there were no other signs. Pain was a marked symptom, and was not referred in this case to the knee, the usual seat, but to the hip and ankle. He was incapacitated for a fortnight, and then resumed work. He had worked in compressed air for many years at both high and low pressures, and never previously felt any ill effects. He was warned not to return to the compressed air, but he did so and remained well.

CASE III.

E. T. W., aged 36, on August 2nd, 1907, left the tunnel in his usual health, but was seized with pain in his back and legs before he reached home. He passed a sleepless night. Beyond exaggerated knee-jerks and ankle clonus his signs were negative, but, his pains persisting, he was sent into the local infirmary and was treated there and by me for over two months. On October 14th he re-entered the compressed air in defiance of warning, and was similarly attacked on October 16th. The relapse lasted a month, and, while the signs and symptoms were identical, it was greatly relieved by electricity, which had no apparent effect on his initial seizure.

CASE IV.

E. B., aged 34, on May 22nd, 1907, was seized on his return from work with severe pains in the legs, back, shoulders, and elbows. His signs and symptoms were similar to those of the cases already cited, and he dragged his right leg for some ten days. This case was singular in the respect that he had pain above the waist.

Cases in which pain in the legs lasted a few days were of daily occurrence, and were called by the workers "an attack of the bends"; they were entirely subjective in character, and one attack did not seem to predispose to another. A few cases of pain in the testicles came under my notice, but beyond the physical distress they showed nothing worth recording.

Conducting the medical charge of this great engineering work in conjunction, as I did, with many other duties, I fear the opportunities for studying compressed-air illness were much neglected, and it may be long before as large an area is again enclosed. In a confined space the elements which go to make up this interesting and curious condition are not to be found. There were many fewer cases of compressed-air illness in the Rotherhithe Tunnel than in the Blackwall, and I certainly think our efforts to produce a better sanitation and a longer period of decompression met with a measure of success.

Since writing the above I have enjoyed the pleasure and instruction of reading the able lecture by Dr. Greenwood, reproduced in the columns of the BRITISH MEDICAL JOURNAL, and I much regret that I, being ignorant of the fact that he was conducting these experiments, took no steps to bring his theory and my opportunity for practice into line. I was uniformly decompressed at an average rate of four minutes for 16 lb. scores of times, and the heads of the contracting firm were treated in the same way every day. Further, I have good reason to suspect that at the end of the shift the men turned the "muck tap," and came out in a time that might be best stated in seconds. If Dr. Greenwood's views are correct, it is quite clear that in future operations in compressed air, medical arrangements should be made which the men not only may not, but cannot, infringe.

THE MENTALLY DEFECTIVE IN PRISON.

BY JNO. MILSON RHODES, M.D., J.P.,
VISITING JUSTICE OF H.M. PRISON, MANCHESTER.

THE inside of our English prisons is to the vast majority of the people a *terra incognita*. Nevertheless prisons and the prisoners have not received in the past the consideration that their importance demands, and it is very satisfactory to see that a commission of thoroughly competent gentlemen has been appointed to inquire into the treatment of certain classes of cases, and I venture to say that when the public realize the large percentage of mental

defectives that are in our prisons they will insist on the law being altered "to make the punishment fit the crime" to a greater extent than it does at present. The object of our prisons is not, or, at any rate, ought not to be, simply the punishment of crime, but also the prevention of crime; the treatment should not only inflict retribution, but also deterrence and reform, and the latter should be of fully as great importance as the former, if not more so.

In dealing with the various classes of breakers of the law, those who, as Dr. Mercier well says in his work,[1] "have done wrong in the pursuit of gratification for themselves by the intentional injury of others" must be firmly dealt with; but before inflicting punishment we must, as far as we can, realize the amount of intention there was in the mind of the offender at the time and how far he was responsible at the time. Only a few years ago a justice assured me that there were no feeble-minded in gaol. When the report of the Royal Commission on the Feeble minded is published next month not only the public but some justices of the peace will learn something. That there are a large number of the mentally defective in our prisons is absolutely certain, and it is also certain that their real mental condition was not diagnosed at the time of their committal.

This is not only my own opinion; at the International Congress at Amsterdam last year Dr. Morel, of the Mons Asylum, said:[2]

Un très grand nombre de criminels, surtout des criminels récidivistes, présentent des symptômes multiples de l'insuffisance mentale. Certains magistrats considèrent certains de ces symptômes, par exemples le récidivisme, l'alcoolisme, etc., comme de circonstances aggravantes, alors que le psychiatre y voit des circonstances atiénuantes au point de vue pénale, aggravantes au point de vue de la protection de la société et du délinquant.

No doubt the magistrate, like the medical officer of the prison, has to be on his guard against malingerers of all kinds; but when you find that in the last report, out of a total of 241 criminal lunatics, no less than 162 were certified as such "after conviction," it is very questionable if the law is the embodiment of everything that is excellent. Dr. Donkin, the prison commissioner, speaking at a conference at Birmingham last November, made the very serious assertion:[3]

The bald statement may be accepted that the weak-minded amount to between 10 and 15 per cent. of the total number of persons committed to prison; the true maximum is probably even higher than this.

In another place in the same paper he says:

Owing to their inherited incapacities and to certain surroundings, a large number of mental defectives tend to become criminals, and a considerable proportion, even 20 per cent., of so-called criminals or law-breakers are demonstrably mentally defective.

The whole of the prison commissioners are evidently of opinion that far-reaching reform is required, for in their report for 1905-6 they very plainly state that:

The steady decrease in the rate which has been going on for some years is very satisfactory, but when it is pointed out that of the 129 cases of insanity certificated in the prisons 73 were found to be mentally unsound on reception and 27 more exhibted symptoms of insanity within a month of reception, it will be seen there is much need for reform in the matter of committing persons to prisons who are actually insane or who are on the borderland. Many of those who were in prison for some time before symptoms of actual insanity were observed were either described as of weak, unstable, or impaired mental condition on reception or were known to have been previously insane.

In addition to those certified insane 354 were reported as more or less unfit for the ordinary penal discipline owing to mental deficiency, and were treated under the regulations of the feeble-minded. Several of the feeble-minded were received more than once in the year, and the records of many of these prisoners indicated the desirability of dealing with them in other ways than sending them to prison.

These are strong expressions, but in my opinion are thoroughly justified and deserving the most careful consideration not only by visiting justices but by every magisterial bench in the country.

Dr. Branthwaite,[4] Home Office Inspector under the Inebriates Act, is very much of the same opinion. Since the Act dealing with inebriates was passed in 1898, 2,277 have been sent to colonies under that Act. Dr. Branthwaite divides them as follows:

	Numbers.
1. Insane	51
2. Very defective	315
3. Defective	1,060
4. Average mental capacity	851
Total	2,277

Out of the 2,277 cases, 1,375—about 63 per cent.—are either totally irresponsible for their drunkenness and drunken offences or are only partially responsible for their unfortunate condition, with its resulting evils.

That leaves out of account the 51 cases decidedly insane. My own experience of prisoners corroborates Drs. Donkin, Branthwaite, and Morel's view, and a prison governor with very large experience told me that he believed that almost all the prisoners who violate the prison regulations are feeble-minded. It must be borne in mind that these grave charges against our prison system are brought not by cranks and faddists, but by experienced and responsible alienists, who are the very last people to make unfounded statements. How serious the charge against the present state of the law is, if the charges are true, is shown by the fact that 183,773 persons were imprisoned in 1906.

That my estimate of 10 per cent. feeble-minded was too low I freely admit. Mr. Henry Wolfer of Minnesota said, at a meeting of the heads of State institutions, that—

On the borderland of lunacy lie the criminal population,

and added—

That no more vexed problem comes before the medical psychologist than to determine where badness ends and madness begins. He stated that out of a prison at Stillwater of six hundred and seventy-five prisoners there were sixty-eight who were actually insane at the time of conviction or immediately thereafter, and one hundred and twenty-two who were degenerate incorrigibles, who ought to be set apart as a class by themselves and treated as such, and that one-fourth and possibly one-third of all adult convicts found in State prisons are similarly afflicted.

If Mr. Wolfer is right (he has had thirty years' experience) there must be many in our prisons who should not be there, for with a prison population of 20,377 on March 31st, 1906, only 955 criminal lunatics were in the criminal county and district asylums of England and Wales. That not all the cases were suffering from temporary insanity is proved by the fact that out of 203 cases of discharged criminal lunatics 112 were "ordered by justice to remain in asylum."

Any one who will carefully study the judicial statistics of England and Wales must acknowledge that if we have succeeded in penalizing the delinquent we have to a large extent failed both as to deterrence and reform, the two objects which should be the chief aim of punishment. Of 182,645 convicted prisoners in 1906 no less than 107,408 had previous convictions against them; of these—

7,458	had been	convicted	four times.
5,612	,,	,,	five times.
17,093	,,	,,	six to ten times.
12,592	,,	,,	eleven to twenty times.
10,700	,,	,,	above twenty times.

A system that has failed in 59 per cent. certainly cannot be called a success; the offender has been made a convicted criminal, but he has evidently in all these cases gone out of prison as much at heart a criminal as he came in.

When you find a recidivist who has stolen a small article of the same description thirty times, surely that man must be to some extent *non compos mentis* to do such an idiotic act.

It is to be feared that we look upon the criminal as much responsible as the average man in the street. He is not so. The following figures prove that, whatever his education may have been morally—if he had any—he had little intellectually:

Prisoners neither able to read or write ...	29,288
Prisoners able to [read or read and write imperfectly	144,566
Prisoners able to read and write well ...	8,857
Prisoners of superior education ...	405
Prisoners' education not ascertained ...	667

The figures show that out of 183,000 prisoners no less than 173,000 had little or no education. If the sectarian educationalists who are quarrelling "while Rome burns" would only consider the serious importance of those figures, they would see the necessity there is of impressing

upon the young mind the importance of that old doctrine "Thou shalt not."

Want of education is a powerful cause of mental degeneration; the total neglect of training to appreciate anything approaching intellectual enjoyment is one of the causes of so many seeking the lowest forms of sensual enjoyment, with all the mental and moral demoralization associated therewith. Ignorance, idleness, and inebriety are the milestones that mark the victim's progress on the road to ruin that ends in the asylum, the workhouse, or the prison, with such disastrous results, not only to the unfit, but to the unfortunate ratepayers, who have to bear both the injury done by the prisoners and also the cost of their keep, to say nothing of the loss to the State of their labour.

Now, what do we hope to gain by an alteration of the system?

1. A better classification of prisoners. The thoroughly vicious criminal must be taught by experience that the way of transgressors against the law is hard; but for the weak-minded, the ignorant, the misled, we want a very different system of classification than we have or can have under the present system. For the weak-minded our prison system is too hard.

2. Our present system of providing for prisoners is very expensive. For the dangerous criminal we must provide prisons where the offender can be confined in safety; but for the less serious offences, such as drunkenness, petty larceny, etc., the State farm would be far more useful and remedial.

3. Attached to each prison should be an expert alienist, as in Belgium. I remember with horror that some years ago a chronic epileptic was hanged for murder.

4. An alteration of the law as regards the habitual drunkard. As the law stands at present on the statute book, many of the inmates of our inebriate reformatories are hopeless dipsomaniacs before they arrive. If the ratepayers are to receive a proper return for their money, we must repeal the law as to convictions and have the offenders detained under an enactment on the lines of that in force in Massachusetts.

5. It is a debatable question what percentage of the commissioners should be ex-army officers; there should certainly be more medical ones.

6. That any system will abolish crime I do not believe, but at the present time I am afraid our existing system of doing things is on the how not to do it system, and I say without hesitation that I am very glad the Commission has been appointed.

REFERENCES.

[1] *Criminal Responsibility*, C. Mercier, Clarendon Press, Oxford. [2] *Le Traitement des Aliénés Délinquants*, Dr. Morel, No. 127, *La Revue Philanthropique*, Paris. [3] *The Feeble-minded Criminal*, H. B. Donkin, Esq., M.D., Birmingham Education Committee. [4] *Mentally-defective Drunkards*, R. W. Branthwaite, Esq., M.D.

MEMORANDA:

MEDICAL, SURGICAL, OBSTETRICAL.

CEREBRAL INFLUENZA.

I HAVE read with much interest Professor Saundby's address on cerebral influenza in the BRITISH MEDICAL JOURNAL of June 6th, 1908, and as he points out that the cases are rare, and in consequence liable to give rise to serious difficulties in diagnosis, I think it may be of use to record briefly the notes of a case that came under my care in January last. The patient was a girl aged 23, and was admitted to the Royal City of Dublin Hospital on January 26th, during the height of the influenza epidemic of this year. On admission she was in a state of deep coma, and was indeed sent in as a case of probable cerebral abscess, on account of a slight discharge which was stated to be coming from the left ear. The only history obtainable was that she had suffered from some slight gastric disturbance about six weeks previously; from this she had completely recovered, and remained in good health until four days prior to admission to hospital. She then began to complain of general weakness, inability to stand or walk, and of violent pains in the head, and vomited once or twice. These symptoms increased, and on the day before admission she became delirious, failed to recognize those around her, and talked incoherently. Her temperature at this time was said to be somewhat raised. On examination the patient was found to be in a state of complete unconsciousness. The pupils were dilated, but reacted to light, and the optic discs were normal. The membrana tympani on both sides was normal, and no aural discharge could be detected. The jaws were tightly clenched, the tongue foul and coated, throat normal. The neck was rigid and slightly retracted; the anterior cervical glands somewhat enlarged; heart and lungs normal; abdominal organs normal; well-marked rectus reflex. The sphincters were relaxed, but a catheter specimen of urine showed a slight cloud of albumen without casts. No other abnormal constituents were present. The legs were somewhat rigid, with well-marked knee reflexes and slight ankle clonus. Neither Kernig's sign nor Babinski's sign was present. The temperature was 101° F.; pulse 104, and very feeble; respirations, 30 to the minute. A blood examination revealed nothing abnormal, the white cell count being only 7,500 per c.mm., with 76 per cent. of granular cells. Some fluid removed by lumbar puncture was quite clear; no bacteria were found either in smear preparations or on culture in serum tubes. A Widal test proved negative, as did also Calmette's ophthalmo-reaction. The patient remained in the above-described condition for four days, and then the temperature sank to normal, and the coma became less profound, so that she could be slightly roused. On the sixth day she made some attempts to speak, and was able to swallow fluids, and from that on recovery was steady but slow. Up till her discharge from hospital, four and a half weeks after admission, she continued to suffer somewhat from aphasia, finding difficulty apparently in selecting the right words to express herself, and often applying wrong terms to familiar objects. A fortnight later, however, after a stay in the convalescent home, this symptom had disappeared, and she was in every way in perfect health. As will be seen from a reference to Professor Saundby's paper, this case corresponds closely with some of those that he describes and therefore requires no further comment. On admission no diagnosis was made (except that the patient was suffering from a profound toxæmia of the nervous system), and it was only by a process of exclusion that the diagnosis of cerebral influenza was arrived at. No drug treatment was ordered, as there was no indication for any special chemical or serum therapy; icebags were applied to the head; nutrient enemata were given at first, and careful watching and nursing were observed.

T. GILLMAN MOORHEAD, M.D., F.R.C.P.I.,
Physician, Royal City of Dublin Hospital.

MRS. J., aged 40, a healthy woman, the mother of three healthy children, the wife of a farmer, had for three or four days previous to the attack complained of headache and chilliness. On April 25th of this year she rose early, and, beyond a headache, was feeling fairly well. She went to feed her chickens, when suddenly she felt faint, and just managed to reach the house, when she had a "fit." The family sent for me, and on my arrival, about three hours later, I found her in bed in a condition resembling that of a person recovering from an epileptic fit. She complained of severe headache, persistent vomiting; temperature normal, pulse 65. I was informed that she had had two fits, one on reaching the house, and another an hour later; during the fits she was unconscious, foamed at the mouth, and was convulsed. A mixture of bromide of potash and phenazone and a dose of calomel were prescribed, cold was applied to the head, and strict rest and quiet were enjoined. The following day she appeared better; the vomiting had ceased, the headache was not so severe, and she seemed more alive to her surroundings; she spoke distinctly and readily. She complained of considerable intolerance to light, in the left eye especially. On the third day temperature 101° F., pulse 85; the headache during the night was intense, and she seemed to be suffering greatly with her head. I gave a tabloid of ½ grain of morphine with $\frac{1}{120}$ atrop. sulph.; this was followed by some relief, and she slept for two or three hours Photophobia still marked. On the morning of the fourth day the headache was not so severe; she was more cheerful; temperature a little lower. The pain returned with intensity in the evening and was again relieved by morphine. The fifth day, the patient had slept after the