nodulated and very tortuous, and of much darker colour than usual. The other eye had its dark brownish-red background, and its arteria and vena centralis as usual. The arterial fluxion is consequently manifest, both by the direct dilatation of the central vessels, as well as more particularly by the change in the colour of the choroid; the dilated bright red arteries concealing the pigment, and the fundus, instead of having a dark red-brown colour, appears of a scarlet colour. The thick, nodulated, tortuous vena centralis retinae, at the same time, indicates that there is an impediment to the return of blood to the brain. Considerable injection of the conjunctival vessels is often observed extending to the circumference of the cornea. This, however, disappears as the attack passes off. The most distinct ophthalmoscopic appearances are seen in the most severe attacks."

Dr. Möllendorff also refers to the very copious secretion of limpid urine which takes place during the headache, and to the secretion of sticky unpalatable saliva; the former corresponding with what results after section of the splanchnic nerves, and the latter after section of the nerves belonging to the glands.

In my previous paper, I remarked that some of the symptoms seemed to indicate a relationship, though fortunately a distant one, between this disorder and epilepsy. The recent communication of M. Brown-Séquard to the Société de Biologie has an important bearing on this point. Some years ago, M. Brown-Séquard discovered that epilepsy could be developed in the guinea-pig in three or four weeks after section of the sciatic nerve near its origin, or, still more certainly, by forcible ablation of the nerve, and that then, by gently irritating a certain zone in the temporal region, fits could at any time be produced. But he found that section of the spinal cord immediately above the organ of the sciatic nerve does not give rise to epilepsy; and this led him to suspect that the symptoms were due, not to section of the fibres of the sciatic nerve proper, but to section of the fibres of the sympathetic united to the sciatic after its emergence from the spinal cord. "Division of the great sympathetic in the abdomen produces only transient effects—incipient symptoms, as it were, of epileptic attacks, but nothing positive or definite. On the other hand, section of the roots of the last dorsal and first lumbar nerves produces epileptic attacks, and it is known that these roots furnish sympathetic filaments to the sciatic nerves. From all this M. Brown-Séquard concludes that it is to the section of the sympathetic that we must essentially attribute the artificial production of epilepsy." (*Lancet*, Oct. 5, 1872, p. 502).

Would not these experiments of M. Brown-Séquard rather show that a series of morbid phenomena originating in section of the sympathetic alone might develop such symptoms as are associated with migraine? but, that for the production of epilepsy, there must be a series of morbid phenomena both in the sympathetic and in the cerebro-spinal system—structures must be operated upon containing the two kinds of fibres; and possibly this is the reason why, though the two disorders may be essentially different and distinct from each other, they have some symptoms in common.

ON THE MORBID EFFECTS OF ALCOHOL.

By W. H. DICKINSON, M.D. Cantab., F.R.C.P.,

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As the last number of the JOURNAL contains no further communications upon this subject, I would ask for the insertion of the few concluding remarks which appear to be required of me. As regards pot-house pathology, my opponents have in one respect answered each other—one suspecting that in the liquor trade and out of it the consumption of alcohol is about equal; another, that persons engaged in this commerce drink so much and so fast that their kidneys are saved by the intervention of the more rapid forms of alcoholic poisoning.

Referring to Dr. Roberts's last contribution in the JOURNAL, I may repeat that my views are not based upon the registrars' reports, but merely corroborated by them. These returns, for reasons I have shown, probably contain a larger substratum of fact with regard to renal than to hepatic disease, but are probably in all cases far removed from absolute truth. I am, indeed, surprised that Dr. Roberts, entertaining as he justly does a mean opinion of their accuracy, should appeal to them for support as often as he does.

As resulting from alcoholic drinks with any practical frequency, Dr. Roberts gives up all changes except granular degeneration; and I am glad to find that our accord has become so considerable. Alcohol has a part, as I have shown, in causing this change, which is none the less real because it has been exaggerated. It causes, also, a congestive or coarse textured enlargement of the organ, which, like other renal changes, is more often found after death than suspected during life.

The question, therefore, is, not whether alcohol ever causes renal disease, but how often, as compared with other causes. Dr. Roberts, after failing to find obvious and tangible causes for chronic albuminuria, is led often to refer it to excess in drink, though the excess has been by no means great. But reasoning by exclusion is in this instance especially liable to error. Climate, age, and hereditary predisposition tell. "The young disease that must subdue at length" is often renal. The fibrosis of age, possibly directed by atmospheric influences, appears in this latitude to run its course faster in the kidney than in other organs. Granular degeneration less often arises from causes which can be distinctly isolated than in double association with bodily decay and with the ever acting surroundings which scarcely suggest themselves as causes of disease. Hence we must not reckon too much on the absence of the more glaring causes of renal disorder, nor be hastily driven to assign it to slight alcoholic excess. As we cannot expect to expose the origin of this disease save in a minority of instances, the absence of a "definite causal antecedent" goes but a little way towards establishing its descent from alcohol.

Touching the effects of alcohol, as gathered from the morbid anatomy of traders in liquor, Dr. Roberts thinks that these persons display only the acute, not the chronic, results. He thinks that renal disease results especially from small long continued excess, while the persons in question display the results of great or drunken excess. Much caution, however, is necessary in ascribing renal disease to such excess as requires a considerable proportion of life to produce its operation, since it is difficult to say how much may be due to time and climate, which thus have room to intrude. Besides this, I think it is clear that the observations in question do not only or chiefly refer to drunken or rapidly poisonous excess: they display the results of many rates of drinking, and give scope and verge enough for all its consequences. Of these, the chronic are the more prominent. It is probable that, with those who follow liquorous pursuits, soaking prevails rather than revelry. They are business-like rather than festive; and, as a rule, poison themselves, not with celerity but with perseverance.

I have given the average age of the alcoholic traders as 36.8 years; of the contrasted persons following non-alcoholic pursuits, as 40.6. *Ceteris paribus*, we might expect a slightly greater proportion of the granular kidney in the class having the longer average of life; but the difference between them (under four years) is not such as to make comparison very unfair on the score of age. Some further particulars may be of interest. The traders in liquor died at ages varying from 16 to 73; the contrasted class at ages varying from 16 to 87. The following table shows how many of each class died in each decade.

Age at Death.	Alcoholic Traders. 146 cases.		Non-Alcoholic Traders. 149 cases.	
From 16 to 20 ...	...	10	...	11
From 21 to 30 ...	...	37	...	39
From 31 to 40 ...	...	50	...	28
From 41 to 50 ...	...	31	...	32
From 51 to 60 ...	...	12	...	21
From 61 to 70 ...	...	5	...	13
From 71 to 80 ...	...	1	...	4
From 81 to 90 ...	...	0	...	1

The mortality from alcohol between the ages of 31 and 40 is striking, and it may be worth while to inquire into its causes. The following table gives the leading causes of death within this decade, as observed in the two classes.

Chief cause of Death at Ages from 31 to 40.

	Alcoholic. 50 cases.		Non-Alcoholic. 28 cases.	
Accidents and sequelæ...	...	7	...	4
Delirium tremens ...	...	7	...	0
Disease of brain, including meningitis	...	2	...	3
Sanguineous apoplexy ...	...	2	...	0
Paraplegia, from fall ...	...	0	...	1
Phthisis ...	...	12	...	7
Pneumonia ...	...	2	...	1
Empyema ...	...	0	...	1
Bronchitis ...	...	1	...	1
Disease of heart ...	...	3	...	3
Aneurism ...	...	0	...	1
Disease of liver ...	...	3	...	0
Albuminuric disease of kidney	...	6	...	2
Other disease of kidneys (unexplained abscess)	...	1	...	0
Morbid growths ...	...	2	...	1
Cholera ...	...	1	...	0
Carbuncle ...	...	0	...	1
Disease of bone or joint	...	0	...	2
Anæmia, etc. ...	...	1	...	0

Thus the alcoholic mortality in the fourth decade is due to delirium tremens, phthisis, the sequelæ of accidents, diseases of the kidney and liver, and sanguineous apoplexy—a large admixture of disease in which chronic changes abound. Within this epoch the kidneys show a larger preponderance of disease than before or after—a preponderance which might be misleading unless taken in connection with other facts. In the series of alcoholic traders, more than half the deaths attributed directly to renal disease occurred within these ten years. In the contrasted series, the same period comprised only one-seventh of the deaths thus attributed. Thus granular degeneration, which is chiefly concerned in this question, was most fatal in the one series before 40, in the other series after 40. Like other chronic and degenerative changes in the same circumstances, the disease was hastened rather than originated. The extent to which it was originated is shown in the facts, that in the alcoholic series, including all ages, it was found in thirty-one instances; in the opposed series, in twenty-seven—not greatly more frequent in one than in the other.

It appears to me that we see under the influence in question not so much chronic disease anticipated by acute as chronic disease, hastened and accumulated within the limits of a shortened life. Cirrhosis, and the slow form of phthisis which is common in the circumstances, are not far removed in their time of development from the granular kidney, and must be equally classed as chronic diseases. Alcohol hurries the effects of age. Under its influence fibrosis and vascular changes arrive before their day; and in such anticipation the kidneys share.

In the amount of renal change accredited to presumably healthy persons, Dr. Roberts finds a source of error. The error, if it be so regarded, is on the part of Nature in not making structures so indispensable to wear better. As to the condition of the kidneys, the best evidence lies in the actual examination of the organs. As against the results of such observation, it is to no purpose that Dr. Roberts urges that he has not found albuminous urine during life as often as I have discovered granular surfaces after death. It would be strange if he had. To say that one man in seven has kidneys with granular surfaces is by no means to assert that as large a proportion of mankind shows the outward signs of renal disease. Early, slight, and even sometimes considerable degrees of renal fibrosis may be quite without obvious urinary change. The presence of albumen marks degree and extent. The absence of the symptoms of phthisis does not prove that there are no tubercles in the lungs; the absence of albumen from the urine does not prove the kidneys to be healthy. "The water itself was a good healthy water; but for the party that owned it, he might have more diseases than he knew." Thus to reckon clinical against pathological observations is to compare sums under different denominations, and to insure an erroneous result.

Dr. Roberts says that granular kidneys are not necessarily affected with the granular degeneration of Bright's disease. One thing about them at least is clear—granular and contracted kidneys are not healthy. The actual revelation of this condition, therefore, has its value as a sign of more or less disease of this organ when the prevalence of renal disease is in question. But I will go further than this, and say, as the result of patient and minute examination of the organs thus affected, that though scars, seams, partial and even general contractions, may result from other causes, yet that the vast majority of kidneys which are found after death to have shrunk cortices and granular surfaces, owe these alterations to fibroid encroachment—not necessarily extensive enough to cause symptoms, but essentially of the same character as is found in association with the well known clinical manifestations of the granular kidney.

The facts given by Mr. Taylor are valuable so far as they go, representing as they do his own experience. Those quoted by Dr. Mitchell Wilson, though dealing with total abstinents, upon which evidence is much to be desired, are not upon a trustworthy basis, resting, as I gather, solely upon the certificates of death, which are far from affording means for the "safe and scientific comparison" which Dr. Wilson seeks. It is to be regretted that the writer who stated that he was "cognisant of a long investigation" contrasting teetotallers and drunkards, should have made no more explicit allusion to it.

In disputation there is a danger which I have been heedful to avoid—namely, exaggeration of the opinions which have been called in question. I do not deny that alcohol may have an injurious effect upon the kidneys, though I do not allow the paramount place which has been assigned to it in this relation. These organs are not exempt from the fatty, fibrotic, and tubercular changes which result from "the sweet poison of misused wine". They also take under its influence a congestive or coarse enlargement, to which I have given due place. But we must not forget the overpowering action of senile, hereditary, and, above all, of climatic influences; nor, as regards the effect of poisons, the extraordinary influence of lead. Touching climate, we

have the testimony both of foreign and transplanted British physicians as to the great infrequency of renal disorders, excepting of the lardaceous kind, in Southern Europe, India, and the tropics. This refers both to natives and settlers, and certainly has no constant association with abstinence from alcoholic drink. As to lead, I have elsewhere shown that of workers in lead killed by disease or accident, at least one-half have granular degeneration—a proportion of renal disease which does not result from any amount or rate of alcoholic excess. With the painter or plumber, be he never so temperate, the kidneys fare worse than with the abuser of alcohol, abuse it how he may. These organs are swayed more powerfully by other agencies than the alcoholic. The alcoholic agency expends much of its force upon other organs and tissues—the nervous system, the stomach, the liver, and the seats of tubercle and atheroma.

Awaiting further facts so far as they may be required, I here leave the matter to the impartial arbitration of time.

REPORT OF FIFTY CASES OF ETHER ADMINISTRATION IN THE GENERAL INFIRMARY AT LEEDS,

By A. F. MCGILL, Resident Medical Officer.

ETHER has been used in the Leeds General Infirmary in all cases in which it has been necessary to produce anaesthesia since November 8th. This report refers to the first fifty cases, and extends over a period of three weeks, from November 8th to November 30th. In the first eleven cases, the ether was given on a small sponge, covered by a folded towel. This method was found to be inconvenient. In the other cases, a large conical hollow sponge, covered with waterproof jaconette, has been used. The drug employed is the best methylated sulphuric ether: about one ounce is placed in the sponge, which is held tightly over the face, so as to exclude air as much as possible.

Of the fifty cases, nineteen were children under fifteen years of age; thirty-one were adults above that age. The average time required to produce anaesthesia was, in children, one minute and a half; in adults, two and a third minutes. The quantity of ether required was, in children, an ounce and two-thirds; in adults, two ounces and one-third. The average time for which the anaesthesia was kept up was, in children, seven minutes; in adults, twelve minutes; the quantities used being two and a half ounces and four and a half ounces respectively. Vomiting occurred in thirteen cases; in six children, and in seven adults. The following cases exemplify the use of ether.

I. A woman aged 62 had ovariectomy performed by Mr. Wheelhouse. Three minutes after the commencement of administration, three ounces having been used, she was insensible, and the operation was commenced. Perfect anaesthesia was kept up for thirty-three minutes. She never vomited after the operation, and made a speedy recovery.

II. Mr. Jessop performed the operation of lumbar colotomy on a woman aged 25. Three ounces of ether produced complete anaesthesia in three minutes. The operation was one of extreme difficulty, owing to the small size of the colon, and lasted sixty minutes, eleven and a half ounces of ether being used. No vomiting occurred, and the patient recovered without a bad symptom.

III. A woman aged 50 came to the Infirmary with a dislocation of the humerus into the axilla. This could not be reduced, owing to the rigid condition of the muscles. She was placed under the influence of ether, and within two and a half minutes the muscles were relaxed and the dislocation reduced.

Cases like the above show that ether can be used with advantage in severe and long operations, and also when it is necessary to produce muscular relaxation.

The following are the chief ways in which the action of ether differs from that of chloroform.

1. The heart's action is stimulated and the pulse improved, there being no tendency towards that most dangerous of all symptoms, cardiac syncope.

2. The respiration is laboured, and the blood imperfectly aerated, as shown by its becoming dark, as though venous, in the arteries.

3. Vomiting is less frequent, and not so troublesome: in only one case out of the thirteen in which it occurred was it at all persistent.

4. Struggling during administration is of frequent occurrence.

5. Restlessness and noisiness after the operation, lasting for some hours, is not unfrequent.

6. Patients who have had both ether and chloroform, much prefer the latter.

In conclusion, I may add that the advantages and disadvantages of