ON THE ETIOLOGY OF ALBUMINURIA, AS DEDUCED FROM AN ANALYSIS OF 200 CONSECUTIVE CASES.

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[THE following paper, which was read and discussed at a recent meeting of the Royal Medical and Chirurgical Society, having been returned to the author by the Council of that Society, is now communicated to the readers of the BRITISH MEDICAL JOURNAL.]

About ten years ago, I made an analysis of nearly three hundred cases of albuminuria which had come under my own observation, and whose histories I had recorded with more or less detail and completeness. From the time that I began to study carefully the subject of Bright's disease, I have made special inquiries in each case as to the probable cause of the malady; and in my tabular analysis of cases, one column is set apart for the etiology of the disease.

Some recent discussions on the influence of alcohol in exciting disease of the kidney led me to refer to my analysis of cases for evidence bearing upon the question in dispute. About nine-tenths of the cases analysed are of the class of hospital and dispensary patients; most of the histories having been taken when time was plentiful, and private patients comparatively scarce.

In some few cases the clinical history is incomplete, and the etiological column is a blank. Omitting only these imperfectly recorded cases, I have extracted and tabulated the probable cause of albuminuria in two hundred successive cases, and I propose now to place the results as briefly as possible before the Society. In the following table, the probable cause of albuminuria in two hundred cases is set forth.

TABLE I.

Showing the probable Cause of Albuminuria in 200 consecutive cases.

No.	Cause.	Total.	Percentage.
1	Scarlet fever	24	12.
2	Intemperance.....	28	14.
3	Intemperance and gout.....	12	6.
4	Intemperance and cold	12	6.
5	Cold and wet.....	23	11.5
6	Cold	13	6.5
7	Cold and fatigue	2	1.
8	Gout	8	4.
9	Typhus fever	8	4.
10	Typhoid fever	2	1.
11	Erysipelas	2	1.
12	Pyæmia	2	1.
13	Measles	2	1.
14	Rheumatic fever	2	1.
15	Purpura	2	1.
16	Cholera	5	2.5
17	Hooping-cough	1	.5
18	Diabetes	1	.5
19	Syphilis	2	3.
20	Intemperance and syphilis	4	2.
21	Phthisis	4	2.
22	Veneral excesses	1	.5
23	Poverty and hard work.....	5	2.5
24	Emphysema and bronchitis	7	3.5
25	Morbus cordis	7	3.5
26	Scrofulous disease of bones and joints	5	2.5
27	Scrofulous abscess.....	1	.5
28	Pneumonia	1	.5
29	Lead and intemperance	2	1.
30	Lead	2	1.
31	Tropical climate.....	1	.5
32	Hydrophobia	1	.5
33	Mental anxiety	3	1.5
34	Pregnancy	5	2.5
		200	100.

It will be seen, by reference to the table, that the influences which are apparently causative of albuminuria are numerous and very diverse.

The various etiological influences, single and combined, come under no fewer than thirty-four heads. But it is remarkable that the majority of cases may be included under a very small number of heads. Scarlet-fever, intemperance, cold, wet, and gout—these influences, either single or combined, account for 120 cases out of the 200, or 60 per cent. This is shown in Table II.

TABLE II.

The probable Cause of Albuminuria in 120 out of 200 cases.

Cause.	Total.	Percentage.
Scarlet fever	24	12.
Intemperance.....	28	14.
Intemperance and gout.....	12	6.
Intemperance and cold.....	12	6.
Gout	8	4.
Cold and wet.....	23	11.5
Cold	13	6.5
	<hr/> 120	<hr/> 60.

The next table shows that intemperance, either alone or combined with other influences, was the probable cause of albuminuria in 58 out of 200 cases, or 29 per cent.

TABLE III.

The number of cases in which Intemperance alone, or combined with other influences, was associated with Albuminuria.

Cause.	Total.	Percentage.
Intemperance alone	28	14.
„ with gout	12	6.
„ with cold	12	6.
„ with syphilis...	4	2.
„ with lead	2	1.
	<hr/> 58	<hr/> 29.

I have not included in the above table eight cases in which gout was associated with albuminuria, for the reason that, although gout was probably, in some of the cases, the result of intemperance, intemperance is not specially mentioned in the history of these eight cases.

The next table shows that cold, either alone or combined with other influences, was the exciting cause of albuminuria in 50 out of 200 cases, or 25 per cent.

TABLE IV.

Cause.	Total.	Percentage.
Cold alone.....	13	6.5
Cold and wet.....	23	11.5
Cold and intemperance.....	12	6.
Cold and fatigue	2	1.
	<hr/> 50	<hr/> 25.

It appears, then, that albuminuria was associated with scarlet-fever in 12 per cent. of the 200 cases; with exposure to cold and wet in 25 per cent.; and with intemperance, that is *alcoholic* excess, in 29 per cent. The following table (Table V) shows the proportion per cent. of deaths, recoveries, and of persistent albuminuria, in cases associated (1) with scarlet-fever, (2) with exposure to cold and wet, and (3) with habits of intemperance.

TABLE V.

	Scarlet-fever.	Cold and Wet.	Intemperance.
Deaths	45.83	27.5	67.23
Recoveries	50.	38.88	10.36
Persistent }	4.16	33.33	22.41
Albuminuria }			
	99.99	99.71	100.

It will be seen that, in cases of albuminuria associated with intemperance, the proportion of deaths is much larger, and of recoveries smaller, than when the disease is a result of scarlet-fever or of exposure to cold and wet.

With reference to this table, it should be observed that it does not represent the relative proportion of deaths and recoveries in cases of acute Bright's disease which have been subjected to appropriate treatment from the commencement of the malady. In a large proportion of these cases, the disease had been neglected, and consequently had passed into a chronic and incurable stage before the patients sought admission into the hospital. Of the 58 intemperate patients, 11 were women (3 of whom were prostitutes), and 47 were men. In 5 cases out of the 47 men, there is no note of the occupation. The next table (Table VI) gives the occupations of the remaining 42 intemperate men who were admitted for albuminuria.

TABLE VI.

No.	Occupation.	No.	No.	Occupation.	No.
1.	Waiters	5	18.	Bargeman	1
2.	Compositors	3	19.	Bookbinder	1
3.	Labourers	3	20.	Tailor	1
4.	Carpenters	2	21.	Coach-builder	1
5.	Cabmen	2	22.	Militia Officer	1
6.	House Painters	2	23.	Tobacconist	1
7.	Silversmith	1	24.	Thames Policeman	1
8.	Butcher	1	25.	Grocer	1
9.	Tailor	1	26.	Scene-painter	1
10.	Millwright	1	27.	Ostler	1
11.	Porter	1	28.	Blacksmith	1
12.	Hatter	1	29.	Scale-maker	1
13.	Tradesman	1	30.	Groom	1
14.	Clerk	1	31.	Bricklayer	1
15.	Waterman	1			—
16.	Coachman	1			—
17.	Paper-stainer	1			—
				Total	42

Dr. Dickinson, in a paper recently communicated to this Society, assumes that all men not engaged in the liquor traffic, and not known to be drunkards, may be placed in a "non-alcoholic" class. Now it appears from the preceding table (Table VI) that, while the list is headed by five waiters, the remaining thirty-seven men, of acknowledged intemperate habits, were engaged in no less than thirty different pursuits, not one of them connected with the manufacture or sale of liquor. In his book on *Albuminuria*, Dr. Dickinson employs an argument to disprove the alleged morbid influence of alcohol which appears somewhat inconsistent with the above-mentioned assumption. He says (p. 236): "Among hospital patients in England, there are but few male adults who cannot be convicted of a somewhat liberal use of beer or gin; while in Scotland, whiskey drinkers are relatively as numerous. There is probably no disease which is common in London or Edinburgh a majority of the men who suffer from which could not be convicted of intemperance in the matter of alcoholic liquors. But to suppose that every disease which affects a person of such habits results from the action of the liquor, is equivalent to believing that drunkenness confers a protection from all diseases except such as are consequent upon itself."

Such a supposition would certainly be very unreasonable, but not more so than the assumption that men of the class of hospital patients who are not engaged in the liquor traffic and not notorious drunkards, may, as a rule, be placed in a non-alcoholic class; and then, from a comparison of the amount of renal disease found after death in the two classes of traders and non-traders in liquor, to argue that alcoholic excess has but little influence in the causation of Bright's disease. Formerly, Dr. Dickinson's argument was that the habit of intemperance is so general among male hospital patients, that its influence cannot be estimated; now, on the contrary, the dealers in liquor are supposed to have almost a monopoly of intemperance. There is but one trustworthy means of ascertaining the habits of our patients, and the influence of their habits in the causation of disease, and that is by making a careful inquiry not only of the patients themselves, but also of their friends and associates. Such an inquiry I have made in all the cases of Bright's disease that have come under my observation for many years past.

Without doubt, much care is required in judging of the morbid effect of any widely diffused habit or influence, but we are not therefore to abandon the attempt to estimate it, or to assume that it is *nil*. A very large proportion of men in hospitals, suffering from a variety of diseases, have been exposed to cold and wet; but we do not therefore conclude that such exposure has little or no influence in exciting disease of the kidney, or that its influence cannot be approximately estimated.

The notorious excess of Bright's disease amongst males, as compared with females, is probably explained by the fact that, as a rule, men are more intemperate and more exposed to cold and wet than women. Out of my 200 cases, 152 or 76 per cent. were males; 48 or 24 per cent. were females. Amongst the 58 sufferers from albuminuria who were of intemperate habits, 47 or 81.03 per cent. were males, while 11 or 18.97 per cent. were females. Again, of the 36 who had been exposed to cold and wet, 28 or 77.77 per cent. were males, and 8 or 22.23 per cent. were females. The intimate physiological relationship between the skin and the kidneys suffices to explain the influence of cold and wet, and the consequent repression of the cutaneous secretion in exciting disease of the kidney. And there is little difficulty in understanding that renal disease may be set up by the continual elimination of an excess of alcohol with the products of alcoholic excess through the kidneys. We hold to this doctrine notwithstanding the conflicting re-

sults of experiments for determining the amount of alcohol excreted by the kidneys. The powerful diuretic action of alcoholic liquors is notorious, and not only have we daily opportunities of witnessing the influence of alcohol in exciting disease of the kidney, and in aggravating renal disease which has resulted from other causes, but the cases are not few in which complete abstinence from alcohol has been followed by the cessation of albuminuria, which had, with good reason, been attributed to alcoholic excess.

A reference to the various causes of albuminuria will show that all cases may be arranged in two classes: 1. Cases in which there is some abnormal quality of blood, the results of the introduction of a morbid agent from without, or of some product generated within the system, or of the loss of some normal constituent. Long continued suppuration, for instance, must impoverish the blood by a copious drain of albumen; while deficiency of wholesome food has a more direct impoverishing influence. By far the greater number of cases of albuminuria are included in this class, and are grouped together under the name of Bright's disease. 2. There are cases in which albuminuria arises from passive congestion of the kidney consequent on a mechanical hindrance of the return of blood. In this class of cases are included—albuminuria, the result of heart-disease, of emphysema with bronchitis, of a copious dropsical effusion into the peritoneum, and some cases occurring in the advanced stage of pregnancy when the enlarged and heavy uterus presses on the vena cava, and causes passive congestion of the kidneys.

I have notes of several hundred cases of albuminuria, which have come under my observation during the last fifteen years; about nine-tenths of these cases have been private patients. I have not yet found time to analyse these records, but I am confident that one result of such an analysis would be to show that, while alcoholic excess would preponderate less than amongst the class of hospital patients, excessive eating and drinking, and certain forms of dyspepsia unassociated with intemperance, are amongst the more frequent causes of albuminuria and degeneration of the kidney in all classes of society. It seems reasonable to assume that the products of ill-digested food may, during the process of being eliminated by the kidneys, cause irritation, disease, and ultimately complete disorganisation of the gland. Cases having this etiological origin occur not rarely in persons of strictly temperate habits, but they are more numerous among those whose digestive power have been impaired by an excessive consumption of alcohol or tobacco. During the last ten years, too, I have seen a considerable number of cases of albuminuria associated with diphtheria, which found no place in my earlier etiological records.

I have also met with cases of albuminuria associated with a history of ague in this country, and others with that of tropical malarious remittent and intermittent fevers. In some few cases of relapsing fever I have found the urine albuminous, and I learn from Dr. Donnet's able report on an epidemic of yellow fever at the Royal Naval Hospital at Port Royal, Jamaica (*Statistical Report on the Health of the Navy for the Year 1867*. Appendix II, p. 41), that albuminuria is an almost constant feature of that formidable disease. The result of careful clinical research has hitherto been to add continually to the long list of causes of albuminuria—a list which probably even now is not quite complete.

POSTSCRIPT.—Since the preceding paper was written I have met with three cases of temporary albuminuria, the results of prolonged bathing in cold water.

ON A NEW KIND OF TRUSS PAD,

DESIGNED TO MINIMISE THE PRESSURE WITHOUT DIMINISHING THE RETENTIVE POWER OF THE TRUSS.

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IN construction this pad resembles a Cole's or a Teale's, so far as its elasticity is due to a spiral spring; but it differs from both of these in its action; for whereas in both the surface which is applied to the skin is firm and convex, and undergoes no alteration of form under any circumstances, the surface of the pad in question becomes changed, under the impulsion of a rupture, from a convex or flat to a concave form. To ensure this result it is necessary that the strength of the pad spring should be a very little inferior in power to the body spring, so that when the patient coughs and the hernia is thrust outwards, the pad, instead of rising *en masse* or at some part of its border, yields to the impulse of the rupture at its centre only, while its circumference is kept firmly in its situation by the stronger resistance of the body spring.

A longer paper on this subject was written, twelve months ago, for