ables without coming to the conclusion that the abuse of alcohol is a powerful agent in inducing renal degeneration. Whether regard be had to the gravity of the changes recorded, or to the percentage of cases in which they were found, the evidence of these tables seems altogether unequivocal. In judging them, Dr. Dickinson seems to have been unconsciously biased by his individual views of the types of renal disease, and to have overlooked the fact that clinically these types, speaking of chronic cases, are in large numbers, if not in the majority of cases, mixed together so as to produce a composite anatomical state. It must also be remembered that the alterations here recorded occurred in the bodies of persons who perished suddenly, while apparently in the enjoyment of their ordinary health; and that, consequently, they might be expected to be, for the most part, only in an early stage of development.

Dr. Dickinson next refers to the paper of Dr. Peters of New York, who examined the bodies of nearly seventy persons who had died from the excessive use of ardent spirits. Dr. Peters thus describes the changes found in the kidneys: "The kidneys are generally somewhat enlarged, flabby, their cortical substances infiltrated in numerous small spots, with a whitish matter, either albuminous or fatty; occasionally they are granular." This description is too vague to found any argument upon; but it seems to indicate a not inconsiderable amount of disease. Dr. Dickinson remarks on the granular condition having been only found *occasionally*; but I find in the same paper that "granular liver was found in four or five cases only"; so that in that respect the kidneys and liver were not very differently situated.

In the last place, Dr. Dickinson appeals to the Reports of the Registrar-General, and founds an apparently cogent argument on the want of correspondence between the death-rate from Bright's disease and the degree of intemperance prevailing in different localities. I have carefully gone over this point, taking the proportional number of deaths entered under the headings Delirium Tremens and Intemperance as a gauge of the inebriety or sobriety of the contrasted localities, and comparing large numbers, or a series of years, in order to get at tolerably trustworthy averages. My surprise was great to find that the conclusion of Dr. Dickinson was substantially correct, and that the death-rate from Bright's disease was as high in the more sober districts as in the more intemperate districts, and frequently much higher. But my surprise was still increased when I found that the death-rate from diseases of the liver, and from those specially entered as hepatitis or cirrhosis, was no higher—often much lower—in the more drunken districts than in the more sober districts. Now there is nothing more certain in the whole range of etiology than that diseases of the liver, and especially cirrhosis, are produced by the abuse of ardent spirits; and yet the Registrar-General's Reports show no trace of this connexion; indeed, if they show anything, they show that intemperance is actually a protection against diseases of the liver. This is a manifest *reductio ad absurdum* of this part of Dr. Dickinson's argument.

The following table summarises some of the results which justify the above observations.

Comparison of the Proportional Number of Deaths from Intemperance, from Diseases of the Kidney, and from Diseases of the Liver, in different Districts.

	Deaths from intemperance.	Deaths from renal disease.	Deaths from liver-disease.
Town districts of Scotland, for the ten years 1855-64	1 in 402.	1 in 134.	1 in 105.
Mainland rural districts of Scotland, for the ten years 1855-64.....	1 in 533.	1 in 131.	1 in 80.
The five most intemperate registration districts of England, for 1867 (Nos. 1, 2, 8, 9, 10).....	1 in 512.	1 in 92.	1 in 86.
The five most temperate registration districts of England for 1867 (Nos. 3, 4, 5, 6, 7).....	1 in 926.	1 in 87.	1 in 79.

No further comment is necessary on this table. It shows conclusively that the Registrar-General's Reports cannot be safely relied on to determine the more delicate etiological problems.

I have now gone over *seriatim* the arguments advanced by Dr. Dickinson, and have, as I believe, succeeded in showing that they are inadequate to disturb the old opinion respecting the effect of alcohol on the kidneys; and that, in fact, the question remains just where it was before

he wrote his article. The only other point which he raises is regarding the proportionate number of granular kidneys in persons who have died of alcoholic cirrhosis of the liver. In forty cases of cirrhosis collected by himself, the kidneys were granular in eight. I may add that Frerichs found granular kidneys the same number of times in thirty-six cases of cirrhosis. In neither series is the proportion strikingly great, but it is certainly not inconsiderable. It must always be remembered that alcohol, like most other causes of disease, works along different lines in different persons, and that its effects vary according to the acuteness and chronicity of its poisonous action. How often does it not happen that we witness the production of cirrhosis from intemperance, without any of the nervous symptoms which usually characterise alcoholism; and, again, how often do we see the latter without the former?

Dr. Dickinson seems to have some difficulty in the *à priori* considerations regarding the way in which alcohol can reach the kidneys to do them injury. The kidneys are certainly less directly in the track of the absorbed alcohol than the liver and the lungs; but they are quite as much so as the brain and nervous system, which are the parts most surely and earliest affected by alcohol—always excepting the stomach.

The mode in which spirit-drinking affects the kidneys is probably twofold. In the first place, it is now well known that alcohol, taken in excess, is largely eliminated in an unchanged state by the kidneys. In the habitual tippler, a frequently reiterated stimulation of the kidneys must arise from this source. Such a stimulation, going on for years and years, can scarcely fail at length in inducing a strong preclivity to organic disease. Secondly, the blood of the intemperate becomes in process of time more or less vitiated, and inadequate to minister to the healthy nutrition of the tissues, and, among others, of the renal tissues.

I do not wish to represent the action of alcohol on the kidneys in too strong relief: the nervous system and the liver are undoubtedly more constantly and earlier affected. But next to these come, probably, the kidneys; and, among the later perils of the less violently intemperate—the steady but not drunken soakers, if I may use the phrase—a high place must, I believe, be given to certain types of Bright's disease.

NOTES AND OBSERVATIONS ON DISEASES OF THE HEART AND LUNGS.

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IN the course of professional life, cases of abnormal conditions of the functions of the heart frequently present themselves. These may be classified as (1) errors of impulse; (2) errors of rhythm; (3) the occurrence of pain; and (4) a departure from the heart's usual or normal sounds. These abnormal conditions may exist separately or collectively, and may be due either to organic disease or to functional disorder; now indicative of fatal tendencies, now of only a passing disturbance in the animal economy. To arrive at a correct diagnosis and a safe method of treatment in these cases, it is absolutely necessary to fully, nicely, and accurately appreciate these several and special indications.

It is of the first importance to ascertain if these abnormal symptoms be due to, or in any way associated with, organic lesion. Seeing the book-certainty with which organic disease and its distinctive features are described, it might be assumed that this is a matter of no great difficulty. One of the most experienced observers of diseases of the heart, indeed, says: "The facility of making a correct diagnosis between functional and organic diseases of the heart is not so great as modern writers lead us to believe; and we more often arrive at a just conclusion by instinctive skill, the result of experience and judgment, than by communicable rules of diagnosis." (*Stokes On Diseases of the Heart*, p. 495.)

In the above, as it appears to me, Dr. Stokes begs the whole question of the difficulty of diagnosis in these cases; the accurate judgment of a man of vast experience being made to supersede the deficiency, to the inexperienced, of definite or even suggestive rules. There really is, however, great difficulty, not only in describing the means towards a correct diagnosis between functional and organic diseases of the heart, but the diagnosis itself, even to the most practised and able observers, is too often a conclusion not easily to be arrived at; and this Dr. Stokes himself, in a preceding page, fully acknowledges.

Supposing, however, we can positively and satisfactorily eliminate all

suspicion of organic lesion, it then becomes necessary to ascertain the immediate cause of the functional disturbances exhibited, paying especial attention to such concomitant disorders of the general health as may present themselves. These may not only be the exciting cause of the disordered action, but may have important influences on the future condition of the heart. There remain, in fact, for anxious investigation, the origin and the probable consequences of these functional disorders, with the indications of cure.

In order to arrive at something like rules for our guidance towards the true appreciation and management of these functional disorders, it may probably be useful to consider the several prominent symptoms of diseased action in relation both to organic disease as well as to these latter.

Amongst the prominent and very frequently occurring indications of disorder of the heart, disturbances in the force of its normal impulse must be enumerated. Its force may be diminished or increased. Either of these conditions may be associated with organic disease or with functional disorder only.

The circumstances attendant on, and giving importance to, the condition of a diminished impulse, may conveniently be first considered. A diminished impulse, varying from that which is slightly below the ordinary standard to that which is virtually uncommunicable to the observer, whether by eye or hand, is at times met with; and the due importance of this it will be necessary to appreciate, together with those other symptoms with which it is found to be associated. While we feel that, in many cases, a diminished impulse is consistent with the enjoyment of good health and long life; still it is a condition so often associated with debility in the structure of the heart itself, or with some other important disorder or lesion of the general system, that the study of this symptom and its several associations and probable consequences, is worthy of the physician.

The circumstances whereby a patient's attention is ordinarily arrested when there is the presence of a diminished impulse, are the occurrence of (1) breathlessness on slight exertion, with a (2) feeling of debility, amounting at times to a realised inability to do that which otherwise would be within the usual compass of his power; and this may be associated with (3) the occurrence of occasional faintness, even to actual fainting. On more minute inquiry, we may find, on examination, that there is a diminished (systolic) impulse; and we naturally first seek to find if the heart itself present any objective physical causes for such weakened condition. Is it diminished in size? Is it enlarged? Are its sounds less distinct or more pronounced? The personal condition of the patient is here to be considered, as, in a chest well clothed with fat, but little impulse may be immediately perceptible, though the heart be normal; while in very thin persons, though the impulse is really diminished, the thinness of the walls so far permits it to be felt as may at first induce the idea that its contractile action is not enfeebled.

Due regard being given to these personal conditions, we may, having ascertained that there is a diminished systolic impulse, find it to be associated with (1) a normal condition of the heart as regards size; or (2) a diminished or (3) an enlarged condition; or it may be associated, in addition to either of the above conditions, with diminished or increased valvular sounds, or irregularities in rhythm, or with other indications of cardiac affection; or there may be no indications of a structurally altered heart, but disease in contiguous or other organs influencing the just recognition of the impelling power.

Having duly appreciated the existence and the amount of the diminished impulse, and also the objective symptoms presented by the heart itself, it is necessary to weigh how far the former is dependent on the latter. We must also consider such other remote causes as may exist. Before pronouncing a diminished impulse to be due solely to a passing weakness, it is necessary to carefully eliminate each and all of those associated conditions which indicate it to be due to permanent disease. When this is done, and not till then, are we competent to assume the diminished impulse to be functional only, and such as may be so ministered to as to procure ultimate recovery.

It may be assumed that a diminished impulse is immediately due to a deficiency in the contractile agencies of the heart; and that this deficiency may be in the nervous influences solely, or may be due to permanent physical incapacities. Of the latter, we have illustration in several structural diseases of the heart; of the former, in circumstances, whether passing or permanent, of great physical exhaustion, such as on the occasion of shock, of the specific depressing influences of certain medicines (tobacco, aconite, chloroform, hydrocyanic acid, digitalis, etc.), and of adynamic fevers and other diseases, more especially of the spinal cord and brain-tissue.

Before considering the purely nervous causes of diminished impulse, we will briefly pass in review the circumstances attending this disturbance in the functions of the heart in its connection with some of the

more important structural affections with which this condition is frequently associated, so as the better to appreciate the *rationale* of the influences which produce it, not only in these affections, but in those, also, of a purely nervous origin. The most important structural affections with which diminished impulse is associated, are characterised by a condition of the heart whereby the dullness on percussion in the pre-cordial region is increased. The physical conditions of the heart in connection with this indication may, in general terms, be referable to (1) dilatation; (2) dilatation with hypertrophy; (3) fatty deposits; (4) deposits in the pericardium; (5) deposits in the pleura. After investigating the distinctive features of each of these conditions, it may be useful to make such notes as may present themselves as to the *rationale* of the deficiency in impulse exhibited in each, and the importance of this deficiency in relation to prognosis and treatment.

In the class of cases now to be considered, those which are associated with, or dependent on, valvular disease will be excluded; observation being limited solely to such as have an independent origin. Nevertheless, we may have to consider cases where the acoustic evidence of mitral murmur is present: this being due, not to valvular disease, but to the amount of dilatation generally, without hypertrophy, rendering the valves insufficient, and thus permitting a regurgitant murmur.

When the impulse is feeble, and there is obviously, on examination, an increase in the area occupied by the heart, as indicated by increased dullness, or by the impulse being diffused, we may assume, without going into an elaborate discussion of the various circumstances connected with contiguous disease or displacements by other organs which may modify the diagnosis, that there is either enlargement of the heart itself, or that there exist abnormal deposits in the pericardium or pleura; and, save when the enlargement is due to concentric hypertrophy, to fatty deposit, or to hypertrophy with softening, we may also assume, if the sounds be louder than normal, that the enlargement is due to dilatation and thinning of the walls of the ventricles.

We will now refer more in detail to the heart-symptoms which may characterise each of these conditions.

When, with the dullness on percussion extending abnormally in a lateral direction, the impulse is deficient in force, and at times slightly undulatory in character, yet diffused over an extended area, and this area, like the dullness on percussion, is extended laterally, but is not to be felt either in the back or below the right shoulder-blade; when, while the apex-beat is apparently seated towards the sternum, its shock is found to be, though diminished and indistinct, to the left of the nipple, and below the fifth interspace, and its shock at this point not more marked or appreciable than over the general area of the heart's position, and the rhythm, though sometimes regular, for the most part disturbed, the pulse being at the same time weak and intermittent, and when the valvular sounds, especially the systolic, are somewhat sharp, clear, and heightened in pitch; when this series of phenomena present themselves, we may infer that there is a generally dilated condition of the heart, the muscular structure of which is neither flabby in texture nor softened by fatty degeneration; and we may also infer the absence of hypertrophy.

Sometimes, however, the above named conditions are qualified by a persistent rhythmical irregularity, with the occasional occurrence of the first sound being absorbed in a murmur; we may then infer that dilatation has proceeded so far as to render some of the valves insufficient. The tricuspid, and then the mitral, are the chief seats of this extended dilatation; should, in extreme cases, the aortic valves also become thus inefficient, the rhythmical action of the heart and the irregularities in the pulse become very marked, while indistinguishable murmurs take the place of the valvular sounds. We may perhaps also infer, when the apparent impulse projects unduly towards the sternum, while both sounds are heard sharp and equal, and sufficiently pervading to be appreciated below the right shoulder-blade, and, at the same time, there is no marked percussion-dullness over the sternum, that the left ventricle is unduly dilated; and we may also infer, if, in addition to great rhythmical disturbance, the jugular veins be unduly distended and present the appearance of an undulating pulsation, that dilatation of the right ventricle exists; and if there be no appreciable abnormal dullness on percussion, we may also conclude that the dilatation is confined to the right ventricle; while if the left ventricle be dilated, we may conclude that the right participates in the like condition.

In all the above cases, we infer the presence of dilatation without special structural degeneration of the parietes of the ventricles. This dilatation, for the most part, exists in both ventricles; but, as just observed, sometimes the right side is solely so affected. As a general rule, the diffusion of the impulse is according to the ratio of the area of the dilatation, while the sharpness and intensity of the sounds is proportionately increased by the thinning of the parietes.

[To be continued.]