

been able to carry this out. Mr. W. Bryce Orme, principal medical officer of Port Said Hospital, most kindly examined the urine of 40 healthy pupils in the Government school in that town and found bilharzia eggs in five cases. Port Said, however, is not a good bilharzia centre owing to its situation and water-supply and I believe that the schoolboys of Cairo would show a much larger proportion than this. Dr. Calamawy of Assiout Hospital also examined 32 pupils of the school there, but he failed to find eggs in any of them, but then again Assiout is also not a good bilharzia centre, none of the 200 odd cases in Kasr-el-Aini Hospital having come from that province.

In order to make good this deficiency Mr. Guirgis, house physician to Kasr-el-Aini Hospital, examined the urine of 100 consecutive patients admitted to the medical side of the hospital in June of last year. Of these 100 cases no less than 35 were found to have bilharzia eggs in their urine, although only two complained of any symptom of the disease. In no less than 15 of these 35 cases was the disease associated with pellagra and this out of a total of 25 pellagra cases only; in two cases the eggs were associated with ankylostoma, and in six cases the patients were peasants who were admitted for inoculation after being bitten by dogs. The nationality of the cases admitted was as follows:—

Egyptians	...	...	...	89	with 35 cases of bilharziosis
Soudanese	...	...	...	7	" 0 " "
Berberines	...	...	...	2	" 0 " "
Others	...	...	...	2	" 0 " "

This illustrates the frequency of the disease among Egyptian peasants and the comparative immunity of the black races.

If it is permissible to draw conclusions from such a small number of cases as are here reviewed these would be as follows. Bilharziosis is a disease of very frequent occurrence in Egypt; it is most commonly found among the peasants and more especially among the peasants of Lower Egypt; it is liable to attack all ages with the probable exception of nursing children; males are more frequently attacked than females; the black races appear to enjoy a certain amount of immunity; and many more people suffer from the disease than are aware of the fact.

Cairo.

FURTHER NOTE ON THE PULSE WAVE IN AORTIC REGURGITATION.

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In a previous note on the heart-index interval¹ I discussed the extreme views held by various writers as to the shortening or lengthening of the interval in aortic regurgitation. I then furnished definite experimental proof that both those writers who stated that the heart-radial interval was always shorter than normal—e.g., Keyt—and those who stated that the interval was always longer—e.g., Sir William H. Broadbent—were equally inaccurate. Sir William Broadbent² having said that “the pulse in aortic regurgitation is always retarded or delayed,” I expressed myself as being in disagreement with him and in agreement with Dr. Walshe³ who confined himself to the more accurate statement that “the retardation (of the pulse) may with care be detected in many, but unquestionably not in all, cases of that disease.” When everyone cannot speak with equal authority as a clinician and when many clinicians of equal authority differ on a point of observation it is a relief to turn to actual physiological experiment for some undeniable facts. So I do not propose to discuss the matter again at any length.

1. The normal heart-radial delay is about 0.18". 2. The normal heart-index delay is about 0.20". In my former note (of a case of simple aortic regurgitation) the delay (2) was 0.216". A lengthening of $\frac{1}{100}$ " quite indistinguishable by touch.

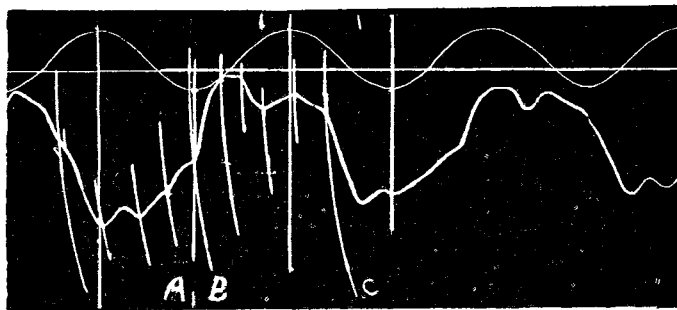
¹ Brit. Med. Jour., Feb. 16th, 1901.

² Heart Disease, 1897.

³ Practical Treatise on Diseases of the Heart and Great Vessels, American edition, 1862, p. 72.

I now publish the following tracings from the case of a young man suffering from well-marked aortic regurgitation. The first tracing is a simple cardiogram of unimpeachable accuracy (see Fig. 1). The second is

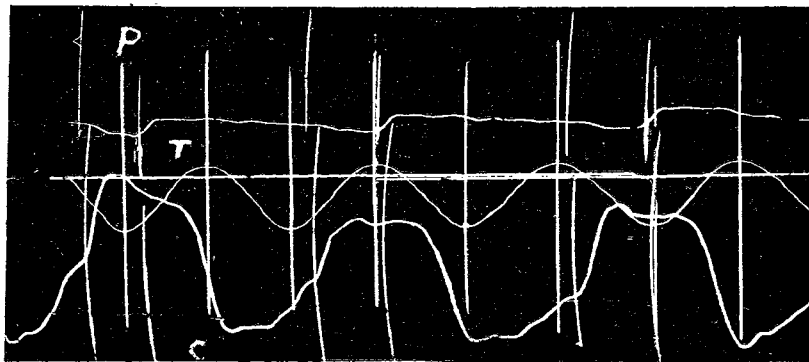
FIG. 1.



A, Beginning of auricular systole. B, Beginning of ventricular systole and cessation of auricular systole. C, Cessation of ventricular systole. Pulse-rate, 80. Duration of ventricular systole, from 0.330" to 0.325". Duration of auricular systole, 0.083". From B to bottom of dicrotic notch, 0.175".

a simultaneous pulse and heart tracing (see Fig. 2). The three letters in this figure, P, T, and C, simply indicate pulse, time, and heart. The straight vertical lines measure off abscissæ of time in quarter seconds. The curved ordinates are described by movements of two levers, attached to the pulse and apex beat respectively by suitable connexions. In a long series of measurements, of which this is only a specimen, the heart-index delay is 0.182" usually, only in some few instances reaching a maximum of 0.200". The heart muscle in this case is largely hypertrophied and the duration of ventricular systole is at its extreme maximum for a pulse-rate of 80. It is usually less in health, varying in different circumstances between 0.30" and 0.33". It is to be noticed that the duration of ventricular systole, strangely independent of extraneous circumstances, is some evidence of structural change in the heart muscle. If very short it is direct evidence of degenerated muscle and is a means of differentiating between (1) fatty infiltration or deposit and (2) fatty degeneration of the muscular fibre itself. In the hypertrophied compensatory heart of aortic regurgitation the duration of systole is rather longer than in a normal heart; the larger muscular mass responds more slowly to stimulus, moves more slowly, and against a much larger initial pressure. The heart-index delay in this case is seen to be never longer than normal, while it is usually less than normal. It varies inversely with

FIG. 2.



Simultaneous pulse (P), heart (C), and chronographic (T) tracings. Heart-index delay, 0.182" (occasionally it was 0.200").

the vigour of the heart's contractions and the tension in the arteries. When (in other cases than this) the delay is longer than in health it is owing to a “collapsed and empty state of the arteries between the beats and partly to their large size and loss of tone,” as Sir William Broadbent³ says. But to this must be added want of due compensation arising from a heart which has not yet responded, or will never respond, to the new calls made upon it or which, having long borne

³ Loc. cit.

a heavy burden, is now commencing to fail or is slowly undergoing degeneration. The burden is great. In a normal heart the ventricular blood pressure at the beginning of systole is about 20 mm. Hg; in aortic regurgitation it may be 150 mm. Hg. I have shown that in the latter case the contraction of the heart is more of the nature of a steady push against a weight, and the resulting wave, not being created by impact, is a slowly propagated wave—that is, one of much less velocity. I believe this to be the real reason why the appearance of the radial pulse is not more often anticipated and that it is only thus we can account for the fact that the disappearance of the *pre-sphygmie interval* is not more frequently accompanied by shortening of the heart-radial interval.

As I have now furnished graphic proof in support of my contention that the pulse in aortic regurgitation is *not* “always retarded or delayed,” I think it must stand as an established fact that my contention is justified. Indeed, the tracing (Fig. 2) here given is complete evidence of what I was not prepared to state on the authority of my sense of touch, but what from my studies on the physics of the circulation I felt sure must be possible—viz., that in some cases of aortic regurgitation the heart-radial interval may be even shorter than normal. There may be some who think that the matter is small and unimportant and after all not worth the trouble of proof. I would bid them not to be hasty but to consider the matter more deeply. In it lies quite a small world of interest, of beautiful and absorbing questions of physics; and, bound up with them, we have a means of estimating compensation or its absence, of avoiding certain commonly employed but baneful methods of treatment, and we have a means of wisely using our reason for the benefit of each individual case of aortic disease. These cases are too often treated according to some general method; as if all cases of aortic incompetency were, on broad grounds, to be treated alike. That this is not so, and also the reasons why it is not so, and what means we should employ to bring about a state resembling as far as possible a normal condition, follow directly from the evidence gained by such experiments. Here a new field lies open and in it in the future much useful work may be done.

Hereford.

ON THE NECESSITY FOR A MORE FREQUENT USE OF THE CYSTOSCOPE IN THE DIAGNOSIS OF DISEASES OF THE URINARY SYSTEM.

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ALTHOUGH a good many years have passed since the introduction of the electric cystoscope as an instrument of precision and as an unequalled means of diagnosis in diseases of the urinary tract, it is scarcely an exaggeration to say that the interest taken in it by the majority of surgeons is very faint and that it is looked upon either as a somewhat ingenious toy of little practical value, or so difficult to use and so uncertain in its results as to restrict its employment to the few. Such is the impression which I have gathered from conversation with members of all ranks in the profession, from the general practitioner as well as from the operating surgeon. This fact is also demonstrated by reference to the latest editions of the text-books upon general surgery in the English language which are at present most widely read by student and practitioner alike, for although in the majority of them some reference is made to the instrument and its use the importance of cystoscopy and the valuable results to be obtained by all who care to gain the mastery of this instrument most certainly are not urged upon the reader. This probably is due to the fact that it takes time to learn how to use the cystoscope correctly, just as it takes time to learn the use of the ophthalmoscope or laryngoscope, not so much from the circumstance that it is difficult to gain a satisfactory view of the interior of the bladder—for any surgeon can overcome that difficulty very readily—as from the necessity of gaining sufficient experience to appreciate at their proper value the appearances observed.

Certain writers apparently consider that the dangers of the instrument outweigh the benefits to be obtained, but these dangers are, after all, but little if any more than those attending the passage of any metal instrument into the bladder. One writer, for instance, in discussing the diagnosis of bladder growths, says: “In certain obscure cases, as when a growth is present for some time without causing bleeding, this instrument will be of much service. But it must not be forgotten that its use entails certain disadvantages. Thus, very easy to use in the bladder of women, in men it is a very different matter. Here, in the deep urethra, it may excite bleeding or it may cause grave febrile disturbance; one case has been related to me in which difficulty of manipulating it through the prostatic urethra was followed by fatal injury to this part. Such cases are not published.” This statement would apply equally to the use of any metal instrument of an equal calibre, roughly speaking, No. 11 of the English scale, yet this writer in an adjacent paragraph says: “Sounding.... should be made use of thoroughly and carefully;.... by using the sound with judicious and gentle vigour particles of a villous growth may be detached for microscopical examination. This perhaps may be aided by washing out with a lithotripsy evacuator.” To advise a judicious yet “gently vigorous” stirring up of a possible growth of the bladder, to be followed by the use of so powerful an instrument as a lithotripsy evacuator, whilst damning with faint praise the cystoscope, which to be of any service must be used with gentleness, is at least curious, and convinces me that the writer can have had but little practical experience of the latter instrument. But it is necessary to justify to others the faith that is in one and I trust to do so by the following striking examples which illustrate the reversal by the cystoscope of diagnoses made without the aid of that instrument and the calamitous results which sometimes follow neglect to use it.

CASE 1.—The patient was a male, aged 42 years, who for some months had suffered from hæmaturia, increased frequency of micturition, and pain. The hæmaturia was intermittent but on at least two occasions it had been profuse. The abnormal frequency of micturition was also intermittent, whilst the pain was chiefly suprapubic in situation and of a dull, aching character. Pain of the same nature was also complained of over the upper part of the sacrum and occasionally in the glans penis after passing urine. The bladder had been sounded by several competent surgeons with negative results and a rectal examination revealed nothing abnormal. A growth in the bladder was suspected and suprapubic exploration was advised if the cystoscope should confirm the provisional diagnosis. Cystoscopy, however, revealed a bladder normal in all respects save that there was a swelling of the right ureteral orifice. Through the opening I saw the gleam of a calculus which was filling the ureteral ampulla and gradually dilating the orifice. The patient was directed to drink large quantities of bland fluids and to take fairly violent exercise, with the happy result that three days later he had the pleasure of sending for inspection a rough calculus rather smaller than a horse-bean. But for the cystoscope this patient would undoubtedly have been submitted to a suprapubic cystotomy. He gave no history of renal colic or pain along the course of the ureter. Pain evidently commenced only when the stone reached the narrow opening into the bladder. He had been sounded several times and as the exposed portion of the stone was only of about the size of a pin's head it was only natural that it was not felt. The negative sounding, combined with the somewhat profuse hæmaturia and the absence of renal symptoms, justified the provisional diagnosis, which fortunately was only provisional.

CASE 2.—The patient was a male, aged 62 years, who for six months had suffered from severe pain, gradually increasing in severity, in the left lumbar region, radiating thence to the left inguinal and suprapubic regions. The pain was intermittent in character and was worse during some attacks than in others. There was also fairly profuse hæmaturia which was generally most marked when the pain was most severe. The urine between the attacks was normal both in appearance and upon examination. The symptoms pointed, therefore, to left renal stone or to renal growth. On examination with the cystoscope a villous growth was discovered attached by a pedicle to the bladder wall in the vicinity of the left ureter, the orifice of which was completely hidden by the growth. On removal of the growth through a suprapubic incision all renal symptoms disappeared. In this case left kidney trouble was closely mimicked by a growth of the bladder, the lumbar