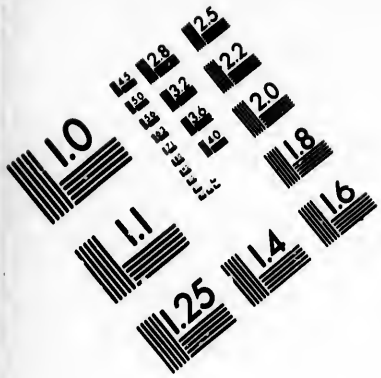

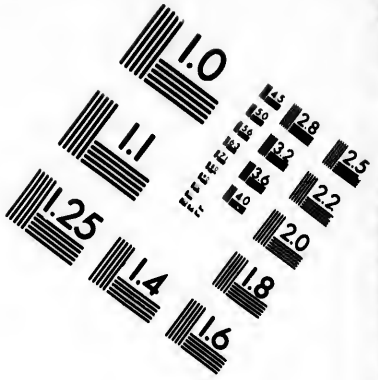

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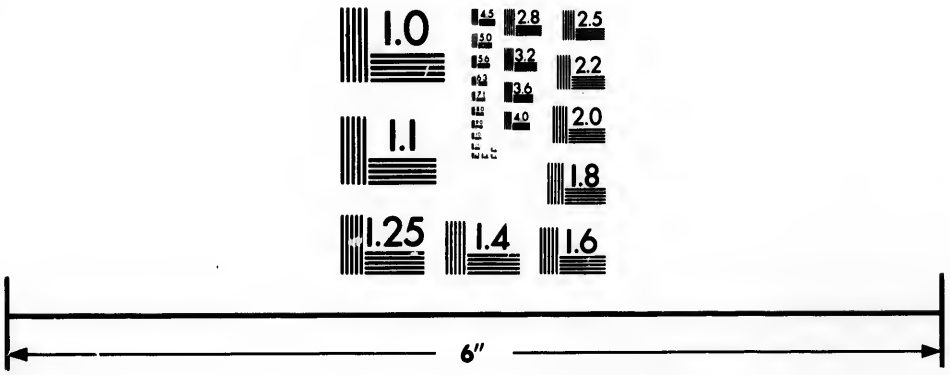

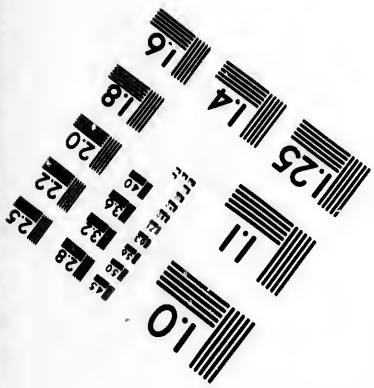

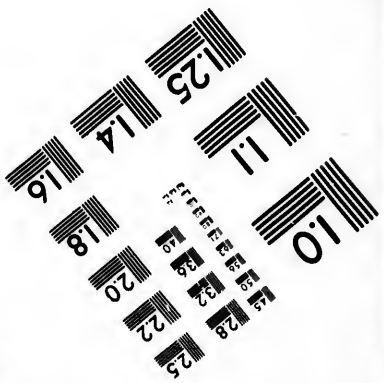

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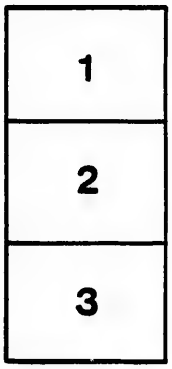

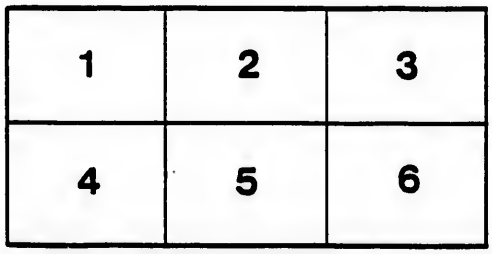

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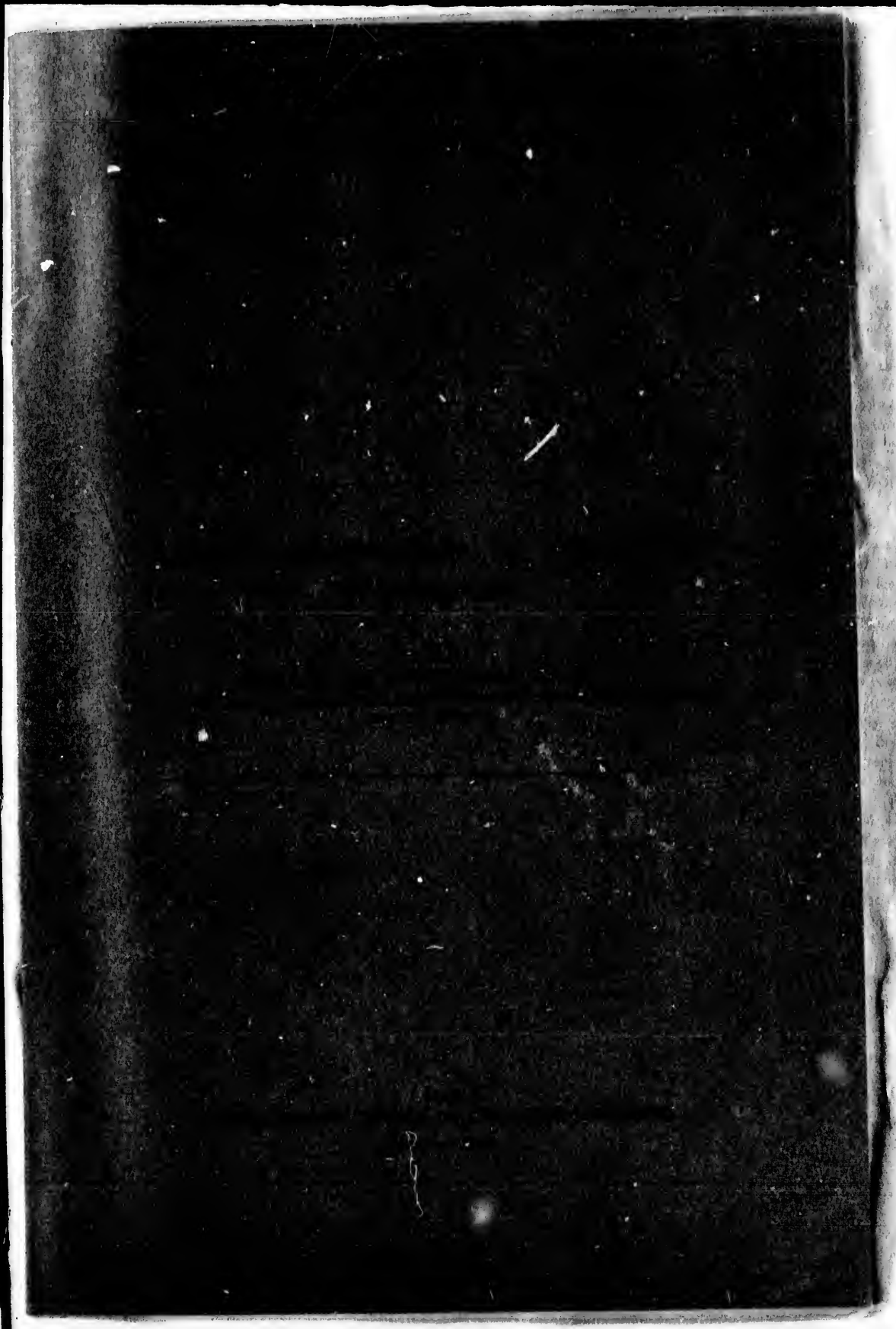

Reprinted from
The American Journal of The Medical Sciences, for January, 1891.

CARDIAC COMPLICATIONS IN GONORRHŒAL RHEUMATISM.[1]

By Richard Lea MacDonnell, B.A., M.D.,
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Inasmuch as many are in doubt as to whether gonorrhœal rheumatism ever affects the heart, I propose to review briefly the literature of the subject, to give the results of a critical examination of the histories of twenty-seven cases of gonorrhœal rheumatism, and to relate somewhat in detail the history of a remarkable case in which I believe the urethral affection was closely connected with the morbid processes which subsequently attacked the pericardium, the endocardium, and the pleura.

I shall not deal with the question as to whether gonorrhœal rheumatism exists, whether the affection we know by that name is a real rheumatism, or whether, if it be a rheumatism, it is caused by a gonorrhœa. I shall merely state that there is a form of joint affection associated with a discharge from the urethra, and that this joint affection differs from ordinary acute or subacute rheumatism in certain characteristics, one of which is said to be that it is never associated with affections of the heart.

In English and American treatises little mention is made of the possibility of the connection. Howard, in his article on "Gonorrhœal Rheumatism" in Pepper's *System of Medicine*, speaks of the connection as being a point on which there is much difference of opinion. He admits that cases have been reported which appear to have been authentic cases of gonorrhœal endocarditis, but remarks that it would be impossible at times to distinguish a polyarticular acute gonorrhœal rheumatism from ordinary acute articular rheumatism, and he mentions the possibility of the heart symptoms being due to pyæmia.

Cases have been from time to time recorded in the journals. The connection is alluded to by Davies Colley, who in an essay on "Gonorrhœal Rheumatism" in *Guy's Hospital Reports*, spoke of one form of the disease which he called the inflammatory form, and which is specially liable to attack fibrous structures not connected with joints, *e. g.*, plantar fascia, the sclerotic coat of the eyeball, the iris, the pericardium, and the

[1] A paper read at the annual meeting of the Canadian Medical Association at Toronto, Sept. 1890.

endocardium, the attack on these last two being usually associated with gonorrhœal arthritis.

In an article on the same subject in the same publication Dr. Pye Smith analyzed the histories of twenty nine cases of gonorrhœal rheumatism and found that in one of them a basic systolic murmur was reported, which he passed over as being most probably of functional origin.

In 1884 a case was reported by Railton of a man, aged twenty-one, who after having suffered for six weeks from a gonorrhœal discharge, was attacked with sore throat, fever (102°), headache. Four days afterward there was pain in the right wrist and sour-smelling perspiration, but no cardiac implication. Two days after this there were evidences of endocarditis. He recovered after some weeks' illness, and the murmurs were said to have disappeared.

The subject is dealt with more fully by French writers. Marty, in 1876, published an article in the *Archives Générales de Médecine*, in which the literature of the subject up to date was reviewed and the histories of nine cases were given as well as one which he observed himself. One of these cases is of particular interest, as it resembles my case in the comparative insignificance of the joint affection. It is that reported by Lacassagne. The patient was a young man who entered hospital with diarrhœa as well as a gonorrhœa. Two days after admission there was sudden pain in the chest, physical signs of endocarditis, and elevation of temperature. No joint pain was observed.

Marty's own case presented the following history:

D., aged twenty-two. No rheumatic or cardiac antecedents. When five years old he was subject to palpitations, but for several years past he has been in the habit of lifting heavy weights without any trouble. In the fifth week of his gonorrhœa he had repeated rigors and intense headache, and a few days afterward it was noticed that there was a systolic murmur at the base of the heart. This was followed by a rise of temperature, presternal pain and vomiting followed by palpitation. The patient eventually recovered, though the murmur remained.

Marty's general conclusions are as follows:

Gonorrhœa may be complicated with inflammation of all the serous membranes, and may act in a direct way on each of them. Rheumatism is by no means a necessary middle term between the specific lesion and the lesion of the serous membrane, although the cases of coexistence of the two complications are most frequent. The cardiac complications are rare. Of the several orifices the aortic one is most commonly attacked. Endocarditis appears to have occurred as frequently as pericarditis, if not more so.

In 1884 a case was recorded by MM. Derignac and Moussons in the *Gazette Médicale de Paris:*

A man, aged twenty-five, in the fourth week of his gonorrhœa was seized with pain in his left shoulder which soon shifted to his right shoulder and there remained. No other joint was affected. There was no previous history of joint affections, or family history of rheumatism. He had never had scarlet or typhoid fever, and he presented no signs of syphilis, alcoholism, or chorea. Two weeks later there was a sudden rise of temperature (102.6° F), with car-

diac distress. Well-marked systolic murmur. The symptoms subsided but the bruit remained, and there was subsequent atrophy of the deltoid and brachial muscles.

In Germany the subject has attracted more attention than elsewhere, several important monographs having been published during the last twenty years by Nolen, Pfuhl, Loeb, Guntz, and others. The first of these has collected fifteen cases of so-called heart complications. I have not been able to see this monograph, but I infer from the criticism of Loeb that the writer includes cases in which no further evidences of cardiac disease existed than reduplication of the first sound. Such cases cannot be included under the category of organic lesions, and the number of his cases must therefore suffer reduction.

Quite recently the subject has been dealt with somewhat exhaustively by Gluzinski, an abstract of whose paper is given in the Vienna correspondence of the *British Medical Journal* for the early part of 1889. It is stated that Brande, in 1854, published two cases of endocarditis and pericarditis, respectively, in connection with gonorrhœal rheumatism, and that Sigmund, in 1858, published two cases. Gluzinski himself collected thirty-one cases, and derived from them the following conclusions: 1. Pericarditis as well as endocarditis might supervene in the course of gonorrhœa. 2. These may develop after gonorrhœal rheumatism, but also without the presence of such an affection. 3. The complaint sometimes assumes the character of a severe infectious disease, as in endocarditis ulcerosa, and runs an acute course, and sometimes gives rise to failure of the heart. Gluzinski believes that the endocarditis is the result of the action of microörganisms on the valves, and he quotes a case published by Weichselbaum where gonorrhœa was complicated with endocarditis and cardiac failure, and the streptococcus pyogenes was found in the vegetations of the valves.

In eight of Gluzinski's cases the symptoms were mild. The patients complained of "stitch" in the left chest and palpitations. There was accelerated and increased action of the heart, and frequently also a slight pericardial râle. In the majority rheumatism was either quite missed or it came on after the cardiac affection had set in. In all the patients there was gonorrhœa of long standing.

This is, therefore, a summary of the literature of the subject. I pass on to what is more interesting—namely, clinical experience.

The medical case-books of the Montreal General Hospital for the last eight years contain the histories of twenty-seven cases—twenty-six males and one female—which have been diagnosed as gonorrhœal rheumatism. Possibly some more cases of the kind may lie concealed among the numerous histories of so-called subacute rheumatism. Of these twenty-seven cases, physical signs of cardiac disease were present in six cases, but of this number two cases can be excluded on the ground that there

was a history of acute rheumatism previously to the first attack of gonorrhœa. A history of scarlet fever in childhood, for a like reason, excludes a third case, leaving three cases in which it is probable that the heart affection depended upon a gonorrhœa.

CASE I. *History of acute rheumatism in childhood, very probably with cardiac complications. In adult life a rheumatism, probably gonorrhœal. Systolic murmur present.*—F. J., æt. twenty-five, laborer, admitted into the Montreal General Hospital June 3, 1888, under Dr. Wilkins, complaining of pain in both knees and in the left ankle. He has had attacks similar to the present one, the first when he was twelve years old, the second when he was nineteen. After the first of these attacks he began to suffer from palpitation and faintness on exertion. When twenty-three contracted a gonorrhœa for the first time, and six months ago contracted another. On admission the joints involved were painful, but not swollen or red. A urethral discharge is present. There is a soft, blowing systolic murmur, loudest at apex and transmitted as far as the axilla.

CASE II. *History of acute rheumatism in childhood. Gonorrhœa at the age of eighteen, followed by arthritic pains. Evidences of disease of the mitral valve.*—J. H., æt. nineteen, admitted May 24, 1885, under Dr. Wilkins. Pain and swelling of both knees. Thirteen years ago had acute rheumatism. Contracted gonorrhœa one year ago, and the discharge has been present ever since. Never suffered from dyspnœa. The present illness began six weeks ago, with pain in the right hip, then in the right knee and in soles of the feet. No history of exposure to cold. Pulse irregular and intermittent. No perspiration. Urethral discharge. The cardiac action is diffused. Apex displaced a little downward and outward, and cardiac dulness slightly increased. Loud, harsh presystolic murmur; a systolic murmur also. After a few days in hospital the pains subsided and the patient was discharged.

In these two cases I regard the occurrence of gonorrhœal rheumatism as accidental, and in no way connected with the valvular disease. It may be fairly assumed that in these patients the injury to the valve occurred in childhood. It is curious to note, however, that in both cases the rheumatism took the form most commonly found in connection with gonorrhœa, and not that of acute rheumatism. The fever was slight, and there was no sweating. The joint affection was not general, and in one of the cases it was limited to one knee and one ankle; in the other to one hip, one knee, and the plantar fascia, and in neither case did any metastasis occur.

CASE III. *Acute articular pains supposed to be of gonorrhœal origin. Evidences of cardiac enlargement and endocarditis. History of scarlet fever in childhood.*—S. R., æt. twenty-six, a glassblower, was admitted to the General Hospital, April 23, 1890, under the care of Dr. Ross, complaining of pain in the left ankle and knee. He had had scarlet fever and measles in childhood, but he had never had rheumatism.[1] About a month or six weeks before admission he contracted a gonorrhœa; the discharge was copious, but had nearly ceased when the joint pains began.

A week before admission he had been drinking and had been much exposed to the weather. The joints attacked were the knees, ankles, and elbows. The joint affection was not severe and subsided in four days.

State of the heart: The impulse is seen and felt one inch below, and half an inch outside the nipple. Dulness begins at the third rib above, and extends transversely from the border of the sternum to one inch outside the nipple. A faint systolic blowing sound can be heard at the apex, and one inch externally.

The patient left the hospital in one month, the joint affection having entirely subsided. There was evidently nothing like suppuration in the joint.

CASE IV. *Two distinct attacks of gonorrhœa. Each followed by arthritis; the first by conjunctivitis and swollen testicle. No history whatever of rheumatism or of scarlet fever. Systolic murmur at the apex of heart.*—J. McN., æt. twenty-four, admitted September 4, 1889, under Dr. Wilkins. Dull pain in left hip and ankle. Purulent urethral discharge. No history of rheumatism. Good health until two years ago, when he had an attack of gonorrhœa which was followed very soon by pains in the left ankle. He was laid up for four months, and was thought to have recovered completely. He was well until three months ago, when he had a new attack of gonorrhœa, followed as before by joint pains. The left ankle began gradually to be painful one week after the discharge appeared. At about the same time the right eye became painful and light became intolerable. He was treated for gonorrhœal ophthalmia in the out-patient department of the hospital. In five weeks the eye was well but the discharge was unchecked, and he suffered from obscure joint pains until a fortnight before admission, when the left hip became very painful. At the outset of the gonorrhœa the testicle had been swollen. There was no fever. Severe pain in left hip. Thick urethral discharge.

Heart: No increased area of dulness. A soft blowing systolic murmur was heard at the apex but was not transmitted in any direction. The patient left the hospital fairly well in about a fortnight.

There can be, in this case, no doubt of the gonorrhœal origin of the two articular attacks. There was no fever, no sweating. The attack was gradual, and there was never any severe pain. In his first attack but one joint was involved, and with it the conjunctiva, a most significant coincidence, In the second attack one hip and one ankle alone were attacked. There was no metastasis. The strongest evidence lies in the fact of the attack having followed twice in the course of a recent gonorrhœa.

The heart affection here was evidently a slow endocarditis possibly dating from the first attack, arising as it does in ordinary rheumatism without giving rise to symptoms, and so escaping attention.

CASE V. *Gonorrhœal discharge of three weeks' standing. Acute arthritis in left elbow ending in suppuration and subsequent anchylosis.*

[1] No mention is made of his having suffered from cardiac symptoms previously to his admission to hospital.

*

Endocarditis possibly recent. No history of rheumatism.—J. S., æt. twenty-one, admitted Sept. 30, 1887, under Dr. Ross. Exposure to cold three days previously followed by chills, slight sore throat, and transient pain in the right thumb. On the following day pain and swelling of left elbow-joint. Has never had rheumatism in any form. A gonorrhœal discharge present for the last three weeks. Has had no headache or sweating. On admission the fauces and uvula were found to be somewhat red, but there was no tonsillitis. Pulse 100; temp. 100.4°. Physical signs of lungs negative.

The apex-beat of the heart is in its usual position and the extent of cardiac dulness is not increased. A rough blowing systolic murmur is heard over the mitral area, most distinctly just over the apex. It is transmitted to the anterior axillary border, and can be heard at the back between the midline and the dorsal border of the scapula. A softer systolic murmur, blowing in character, is heard in the second intercostal space close to the left border of the sternum.

On the fourth day of the illness there were some fugitive pains in the left wrist. Temperature fell to normal. During the next fortnight the left elbow-joint became distended with fluid, which, on aspiration, proved to be pus. The case was transferred to the surgeons. The patient recovered with a stiff joint. During his stay in hospital the heart-murmur diminished in intensity but never disappeared.

There is nothing in this history to warrant the assumption that ordinary acute rheumatism was the cause of the heart affection. There is no history of a previous attack. Exposure to cold is well recognized as the exciting cause of gonorrhœal, as well as of ordinary acute rheumatism. A one-joint affection ending in suppuration can hardly be acute rheumatism. It must be either gonorrhœal rheumatism or a pyæmia, and it is highly probable that the distinction between these two morbid states is merely one of degree. Cases of gonorrhœal rheumatism ending in pyarthrosis are very rare but they have been described. Fifty years ago Vidal (de Cassis) mentioned this termination in his famous treatise on the venereal diseases and gave the particulars of a case ending like this in suppuration and anchylosis.

Case VI. *Gonorrhœa; rigors; slight joint pains; sudden and urgent dyspnœa; pericarditis; endocarditis; pleuritis; recovery with persistent mitral murmur.*—D. B., æt. twenty-two, a merchant's clerk, of fair complexion, short stature, and very muscular build, had always been in good health until May 8, 1890, when after a long, cold, wet drive he became thoroughly chilled, and when he alighted from the vehicle he noticed that his knees had become stiff and painful. He took some hot brandy and water and was obliged to go to bed immediately, feeling very ill and uncomfortable. He slept badly, owing to his chilly sensations as well as to the pains he felt in the knees. These pains were not very severe and were not relieved by resting—in fact, he found some relief in moving them about. On the following morning, though he felt tired and uncomfortable, he went to his office, but in the middle of the day he began to experience a sense of oppression in the chest and was obliged to rest that afternoon, though he did not take to bed. The next day

was Saturday. He returned to the office in the morning, did all that was required of him, went home to dinner, and in the afternoon took part in the inspection of the volunteer corps to which he belonged. He felt a little stiff in the knees at starting but at that time felt no shortness of breath or cardiac pain. There was a great deal of marching about and as the afternoon wore on he felt very stiff in the knees and began then, for the first time, to feel pain in the wrist and the ankles. The next day being Sunday he rested in bed all day suffering merely from slight pains and stiffness in his knees, the pain having entirely left the wrists and ankles. On the following (the fifth) day on attempting to dress he found himself very short of breath, and during the day this distress increased rapidly. He found sitting more comfortable than lying and soon he could only breathe comfortably when standing. He now sought advice, and Dr. Herbert Reddy, who was summoned, found him in a state of urgent dyspnœa and breathing forty to the minute. The pupils were widely dilated, and he wore an expression of deep distress and anxiety. The pulse was rapid, but the temperature was not very high. There were no physical signs, and the joint symptoms had at that time completely disappeared. The general appearance was that of a patient in the early stage of a severe pneumonia.

On the afternoon of the following (sixth) day, when I saw him in consultation at Dr. Reddy's request, the patient was in less distress than on the previous day. There was still orthopnœa. Respirations were 36 and the temperature 99°. The resemblance to the appearance of a patient in the early stages of pneumonia was very remarkable, but there were no physical signs in the lungs. Over the base of the heart a double friction-murmur was distinctly audible, extending over an area of about an inch and a half in diameter, with its centre at the middle of the junction of the third costal cartilage with the sternum.

The heart's action was excited but regular, and there was no increase in the area of superficial cardiac dulness.

With such symptoms and physical signs a diagnosis of acute pericarditis was made, and it was not until this stage of the examination was arrived at and a cause for the pericarditis was sought, that he told us about the joint pains, and that he was suffering from a gonorrhœal discharge of some five weeks' standing.

On the following day (seventh) the friction-murmur could not be detected. From the eighth to the tenth day of the illness, when he was under Dr. Reddy's care, the dyspnœa gradually subsided, and the friction-murmur was not again detected.

On May 18th (eleventh day) he was admitted to the Montreal General Hospital, when the following condition was noted: Patient somewhat pale; pupils dilated; no manifest dyspnœa while at rest; respirations 20; no swellings of the joints; dorsal decubitus. The anxious expression observed at my first examination is no longer present. There is no constant cardiac pain or palpitations. The patient complains of pain merely when he takes a very long breath. The apex-beat of the heart is in its normal position. The heart's action is slow and deliberate. The area of superficial cardiac dulness is not increased, and there is no diminution of the intensity of the cardiac sounds. A systolic murmur is faintly audible at the apex, but it is not heard around the chest. At times when the patient is lying upon his back this murmur is not audible, but it becomes so when he sits up and leans

forward. At the base of the heart both the cardiac sounds are quite clear; the pulse beats at 66, regular and compressible.

A urethral discharge has been present for the last six weeks. It had nearly ceased at the time he went out driving, but after the chilling it returned, owing, he thought, to the large quantity of hot brandy and water which was given to him at the time. This is his second attack of gonorrhœa, the first occurred some months previously, and was accompanied by a swollen testicle, but no joint pain. The urine is of normal quantity and specific gravity, and contains no albumin. Temperature 99°.

There is no evidence of any previous illness showing a tendency to rheumatic affections, no scarlet fever, no tonsillitis, no chorea.

Family history: With the aid of the patient's brother, who is a medical man, I was able to look into the family history thoroughly. On the father's side there is no trace of any rheumatic or gouty tendency whatever. On the mother's side, of five uncles and aunts of the patient, one aunt is the subject of heart disease, and the two sons of another aunt have had, the one a chronic affection of the heart and the other recurrent attacks of acute rheumatism.

June 2 (25th day). He has now been a fortnight in hospital, and up to to-day has been doing well. The temperature has been normal or nearly normal; the pulse quiet. There has been very little dyspnœa. The systolic murmur has been becoming more distinct, and it is now plainly audible in any position of the body. During the day the temperature rose to 100°, and he complained of epigastric distress.

4*th* (27th day). The evening temperature has gone just beyond 100° for the last three days. Pains in the back of the neck and about the shoulders. Flatus in abdomen troublesome.

7*th* (30th day). Temperature rises to above 100° at night, and last night it touched 101°. Pain on taking a long breath. Orthopnœa. No new physical signs.

8*th* (31st day). Evening temperature was 102°. Dulness on percussion at the base of the right lung, weakened breath sounds and diminished vocal resonance. At the left base there is a slight loss of resonance. The heart's action is now rapid, the sounds are somewhat muffled. Respiration 24.

9*th* (32d day). To-day a distinct to-and-fro murmur is heard over the præcordium, with its maximum intensity at the junction of the fourth costal cartilage with the sternum on the left side, and it is audible at any point within a radius of an inch and a half from here. The limits of cardiac dulness are not perceptibly increased. There is evidently fluid in both pleura, for on both sides of the chest there is now flatness as far up as the angles of the scapulæ; breath-sounds absent. On the left side over the dull area there is very distant ægophony.

10*th* (33d day). The temperature reached its highest (104°) last night. Great restlessness and discomfort. Physical signs unchanged, except that the cardiac dulness is increasing toward the right side, extending to half an inch beyond the right border of the sternum.

He complains greatly of gastric eructations, and the cardiac pain and dyspnœa interfere with sleep.

12*th* (35th day). The temperature has been falling. Cardiac dulness is unchanged, but the to-and-fro murmur is no longer present. Sounds muffled.

13*th* (36th day). The sounds less muffled. A systolic murmur again audible just below the nipple.

18*th* (41st day). There is general improvement. Very slight rise of temperature in the evenings. Ægophony not so well marked. Systolic murmur now very plain.

July 9. Went to his home in the country to-day. From the date of last note he improved very rapidly, especially after he was allowed to move about. When he left the hospital the cardiac dulness was of normal extent, and though the ægophony entirely disappeared, there still remained a margin of dulness at both bases. The systolic murmur presented its old character, being limited strictly to the apex. The urethral discharge gradually disappeared.

Such is the history of the case which carries with it the greater part of the evidence I have to bring before you in favor of the view that gonorrhœal rheumatism may set up cardiac affections. A young man, not personally nor hereditarily disposed to rheumatism, in the fifth week of his second attack of gonorrhœa, is exposed to cold, suffers from a succession of rigors, followed by slight joint pains, chiefly in the knees, not of a character sufficiently severe to confine him to bed. After four days these transient joint pains leave him and he is suddenly attacked with præcordial pain and dypnœa. The physical signs of pericarditis are recognized. Nothing more is heard of the articular pains, but the urethral discharge continues and evidences of pericarditis disappear. On the thirtieth day of the illness fresh effusion takes place in the pericardium, and in the pleura the same process is noticed. Gradual absorption of effused fluid takes place. Finally, all physical signs disappear except a well-marked apex systolic murmur.

Either it was a case of gonorrhœal rheumatism in which the endocardium, pericardium, and the pleura were attacked, or it was an ordinary case of acute rheumatism with ordinary complications, and the gonorrhœa was merely an accidental circumstance. I believe that the gonorrhœa was the cause of the attack on the serous membranes, for these reasons:

1. There was no previous history of acute rheumatism nor of any rheumatic manifestations whatever; no tonsillitis, no chorea, no growing pains. His mother assured me that up to the present illness he had been perfectly well.

2. The fact of cold having acted as an exciting cause in no way affects the probability of gonorrhœa having been the predisposing cause. In the twenty-seven cases of gonorrhœal rheumatism I have collected cold was put down as the exciting cause in seven, and this is no new observation.

3. Pyrexia was by no means prominent. For the first fourteen days the temperature scarcely went over 100°. At the time the pleurisy and pericarditis were discovered there was elevation, but not at the outset

of the disease, as would most probably have been the case in ordinary acute rheumatism.

4. The joints were involved to a very slight degree. He was never obliged to take to bed on account of joint pains, and at the very height of the attack he was still able to walk about. The pain was mainly felt in the knees, and there was no metastasis. The wrists and ankles were merely stiff. We know that in children the joint affection of rheumatism bears no relation to the severity of the heart affection, but in adults one does not commonly see cardiac affections follow joint affections so slight as these were.

5. There was no sweating at any period of the disease.

The conclusions which may be drawn from this paper are as follows:

1. That a review of the literature of gonorrhœal rheumatism shows that although a considerable number of cases have been recorded to prove the connection between gonorrhœa and affections of the serous membranes, yet those histories which will bear close inspection are very few. In some, the actual presence of the heart lesion is open to doubt, and in others the existence of ordinary acute rheumatism cannot be excluded.

2. That although of remarkably infrequent occurrence, cases do occur where the poison of gonorrhœa attacks the endocardium, the pericardium, and the pleura as well as the fibrous structure of joints.

3. That if such be the case it is the duty of physicians to regard gonorrhœa in a more serious light, to confine patients to bed whenever the symptoms are at all severe, to examine more frequently the condition of the heart, and to ascertain in cases of chronic valvular affection where there is no history of acute rheumatism, whether a possible cause may exist in a bygone gonorrhœa.

My thanks are due to my colleagues, Drs. Ross, Wilkins, and Molson of the medical staff of the Montreal General Hospital, for permission to make use of their case-books, as well as to Dr. Vidal, my house physician, for the aid he afforded me in collecting the clinical histories used in the preparation of this paper.

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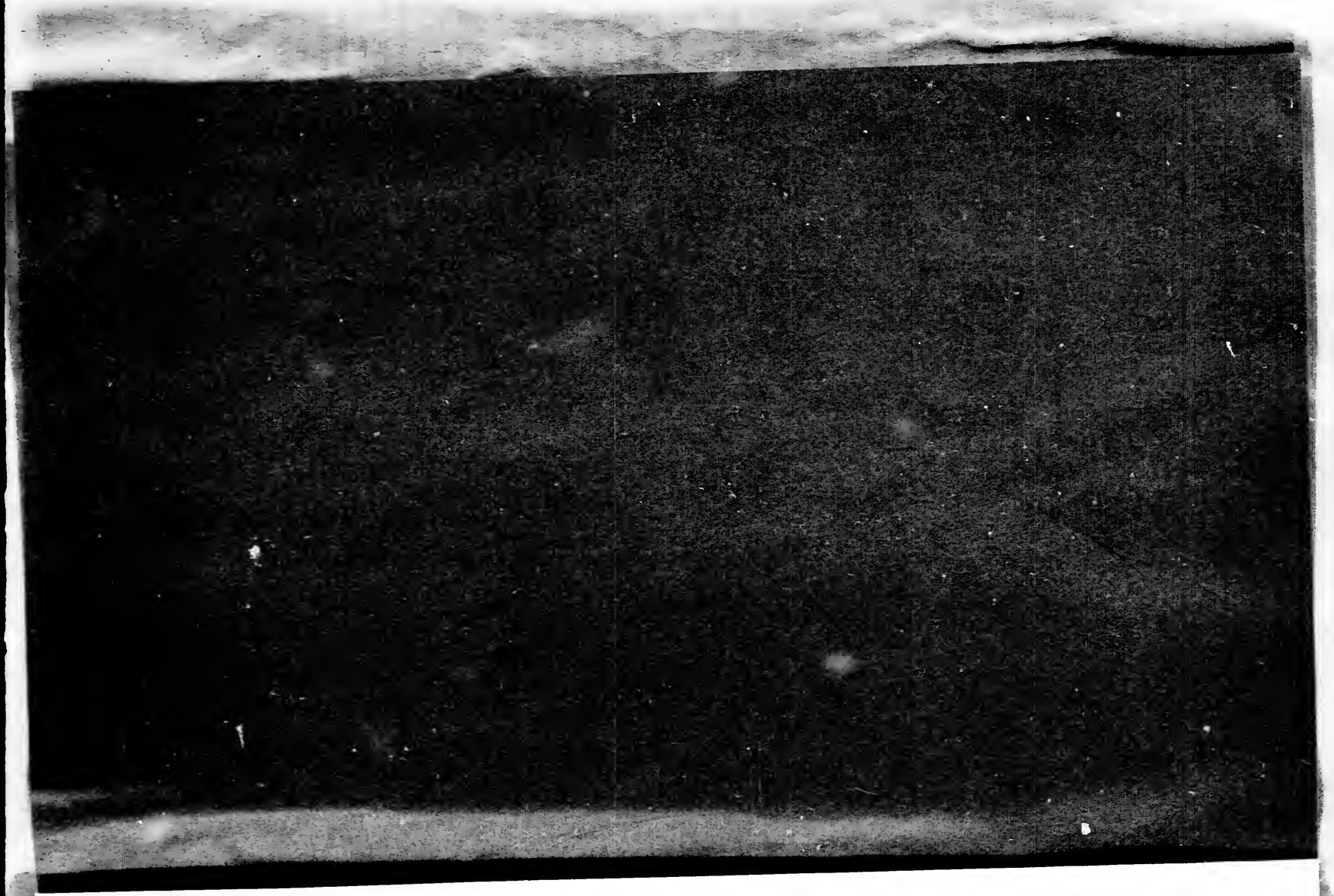

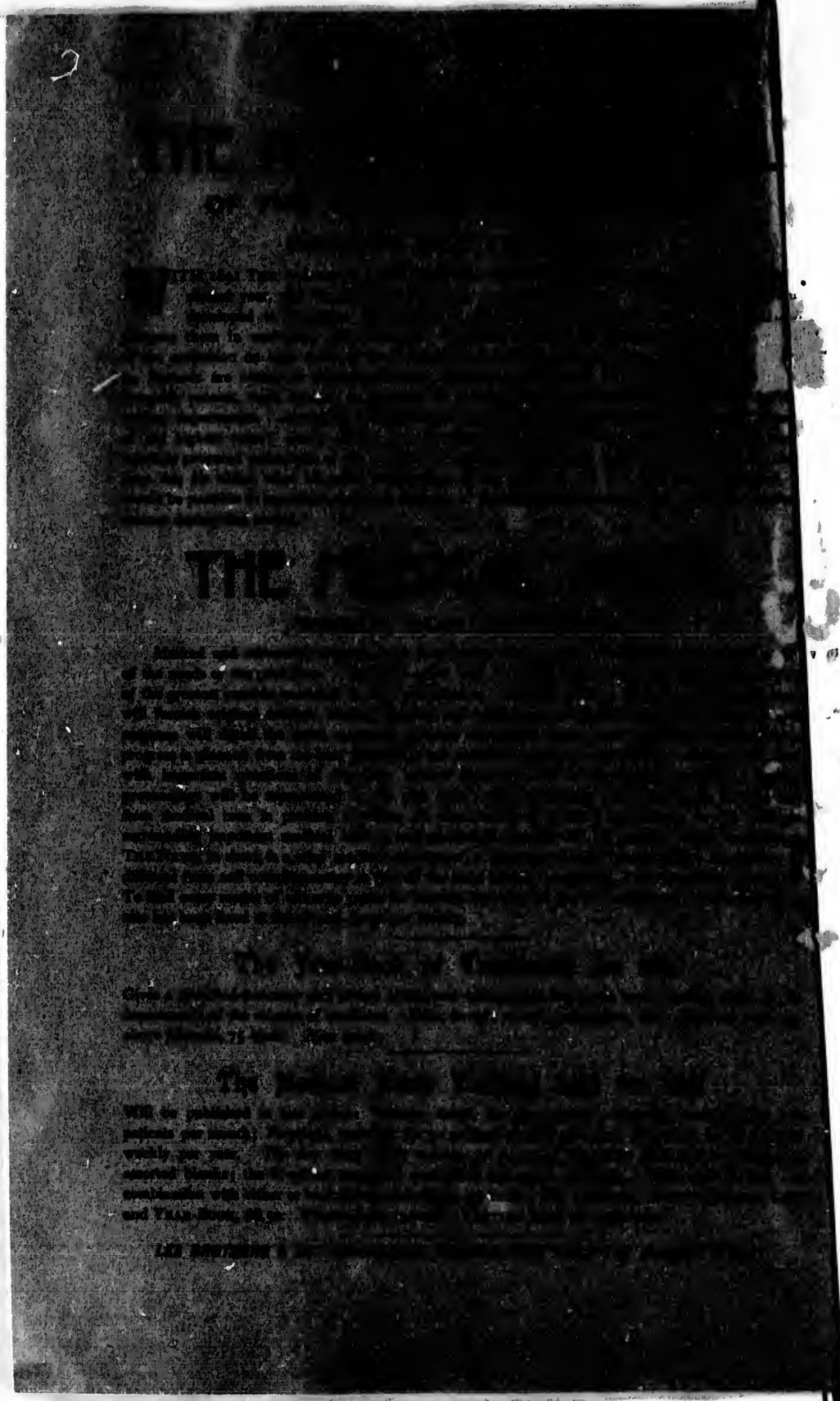

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