THE ENDOCRINE AUTONOMIC SYSTEM

IN DEMENTIA PRAECOX.

T H E S I S

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by

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Introduction.

Psychiatry provides innumerable problems to the scientific mind but most of them can be met with in that complex symptomatological mosaic called Dementia Praecox. There is little doubt that this clinical conception, which owes its origin especially to Kraepelin, is one of the most important of psychological medicine. The conception itself is largely founded on a considerable number of signs of disordered behaviour occurring at adolescence, many of which are common to other psychoses.

Dementia Praecox takes different forms in different individuals, a multitude of groupings of these signs being found which lead to the formation of more or less well defined groups or sub-divisions within the total entity itself. Again, many anomalies are to be discerned, the condition being found in later periods of life, than the word "Praecox" would lead the Psychiatrist to expect, and often the dementia is more apparent than real. Thus there arise differences of opinion, subjects for discussion and dispute, even total denial of there being such a clinical entity whatsoever. There is no other conception in modern psychiatry which has given rise to so much controversy.

As in every other controversy, the subject can be viewed from many aspects, each of which depends on the viewpoint and mental make-up, the prejudices and unconscious rationalisations of the beholder, who may be Psychologist, Neurologist or Pathologist. And the prejudices are apt to bar any common avenue of approach.

Dementia Praecox or, as it is termed by Bleuler[1] Schizophrenia, is one of the most important diseases of a Mental Hospital from an economic standpoint. Kraepelin[2] found that 10% of his admissions were cases of Dementia Praecox and that in Heidelberg the rate was 15%. An examination of the cases in Inverness District Mental Hospital shows that over the period 1st May 1922 to 31st October 1926, 625 men and women were admitted, of whom 70 suffered from Dementia Praecox - a rate of 11.2%. In Kraepelin's cases males predominated in the proportion of 57.4% and in Inverness in that of 62.8%. The disease is also economically important from the point of view of the longevity of its sufferers, despite their lowered resistance to epidemic and infectious disease: for example, one female patient has been an inmate of Inverness District Mental Hospital for 55 years, one for 49, one for 44, one for 42, one for 40, one for 37, one for 36, one for 35, and so on. As a result, there

is an accumulation of these patients in all stages of the disease, giving on 31st October, 1926, 85 cases of Dementia Praecox among 348 females, and 122 cases among 358 males, or a total of 29.2% of the Hospital population of 706.

It is generally regarded that the disease shows either three or four main groups:-

	Female.	Male.	
(1) Simple	1 ...	2)	No. of each group in the 70 admissions of the period under review.
(2) Hebephrenic	19 ...	28)	
(3) Catatonic	4 ...	12)	
(4) Paranoid	2 ...	2)	

But Kraepelin himself was faced by the problem of the multitude of grouping of symptoms which may be found and latterly divided his picture of the disease into eleven divisions - dementia simplex: hebephrenia: simple depressive dementia praecox: delusional depressive dementia praecox: circular dementia praecox: agitated dementia praecox: periodic dementia praecox: catatonia: paranoid dementia praecox, gravis and mitis: and schizophasia.

Dementia Praecox is generally regarded as a psychosis of the adolescent period though not definitely restricted to it, but the whole conception is so vague

that strict delimitation in coming to a diagnosis is often difficult, so difficult that a wait-and-see policy is forced on the physician. In the present state of knowledge diagnosis as such is a secondary consideration. It is only two years since Professor G.M. Robertson(3) attempted to answer the question "Is Dementia Praecox a definite clinical entity?" He concluded "while dementia praecox may not yet have established its claim to be considered a definite clinical entity, and while it is possible that under this term there may be included several varieties of mental disorder, all of which tend to develop one or other of the eleven different forms or degrees of terminal dementia described by Kraepelin, we are nevertheless all indebted to him".

In these circumstances it follows that if to the four cardinal groups be added two other psychoses of adolescence, a confusional and a manic-depressive, a more comprehensive picture of this great age period is presented, producing a wider conception of the entity, dementia praecox. My statistics show an additional thirty-two cases which might well be added to the series and are tabulated thus:-

	Male.	Female.
Confusional	1	4
Manic-Depressive	17	10

Recovery is attained in these cases in that the acute disorders of conduct disappear, but the patients are left in a state of enfeeblement of varying degree, evinced by emotional apathy and impaired volition. To the confusional type further reference will be made owing to their importance from an endocrinological standpoint.

Kraepelin's comprehensive study of Dementia Praecox largely turns on objective signs of disordered behaviour and he credits to the condition numerous psychic symptoms, which group themselves according to different clinical forms. But of that series of states of which Dementia Praecox consists, he states the common characteristic is "a peculiar destruction of the internal connections of the psychic personality. The effects of this injury predominate in the emotional and volitional spheres of mental life."(4)

The relationship of emotion to volition is that of affect to conation and hence in examining cases of abnormal behaviour we naturally turn to the affective approach to mental processes. Those primitive innate psychic dispositions we call the instincts have each or

them a correlated emotion - an affective state. Our sentiments, our moods, temperaments, our interests, and our attention are all of them at the bidding of a more or less fleeting affect or particular emotion. Our whole psychic life, conscious and unconscious, our complexes with their prejudices and rationalisations, are governed by these primitive affective forces, and through them our reaction to our environment. But as many years ago Darwin[5] showed in his "Expressions of the Emotions in Man and Animals" and more lately Cannon[6] in his "Bodily Changes in Hunger, Pain, Fear and Rage" each particular emotion has a particular effect on the individual. Our expression varies with pain, fear and rage, but so do also our pulse, our skin, and our blood pressure. And these changes take place through our sympathetic nervous system and the various endocrine glands, particularly the adrenals, and their hormones.

In Dementia Praecox there is that "weakening of those emotional activities which permanently form those mainsprings of volition so that the essence of the personality becomes destroyed."[7] This is the variable dementia of the Praecox patient, in which there is an intrapsychic splitting which may relegate the sufferer to a purely vegetative existence, with a complete retreat from reality. In Organic Dementia there is a

"diffuse disorder of activisation of memories which gives rise to a diffuse defect of elaboration, retention, memory and orientation, but in Dementia Praecox the dementia shows itself essentially in the sphere of interest in the environment, and in the peculiar distortion of the train of thought."(8) Lack of interest, retreat from reality, faults of attention, the increased suggestibility shown in echolalia and echopraxia, with the many other psychic symptoms may all be reduced to that common factor - disorder of emotion. So this study of Dementia Praecox finds its stimulus in emotion, in the bodily adaptations to emotion which are recorded, together with observations on the condition of the endocrine glands and their reaction in a series of cases. Some analogies are drawn and some hypotheses are put forward which may rest on a slender basis, but they are the result of personal observation under many and varying circumstances during the past eight years, and so may be worth putting on paper as an expression of the personal opinions of their author.

The statistics given in earlier paragraphs of this Introduction are drawn from the case records of the Inverness District Mental Hospital where the greater part of the work has been done during the past five years.

Historical Outline.

Endocrinology is the outcome of modern physiological medicine, aided by advanced methods of clinical investigation and by progress in organic chemistry. Fundamentally it may be regarded as the application of the principles of chemistry to biological mechanisms, its foundations as a science being laid by Claude Bernard in 1855. But although there is this modern conception there is also a more primitive empirical parent in the use of animal extracts, a form of therapy as old as medicine itself. While, however, the literature up to about 1800 is rich in references to the use of such animal extracts in the treatment of disease, there are few extensive attempts to formulate any general theories as to their mode of action. Such could hardly be expected in light of contemporary knowledge of physiology in these early periods.

Clinical medicine provided the first steps on the road to a scientific study of the effects of animal secretions when in 1855 Thomas Addison, as a result of clinical and pathological observations, described the disease now known by his name as due to the destruction of the suprarenal glands.

In 1873 Gull described hyperthyroidism and hypothyroidism.

In 1878 Ord gave the name myxoedema to conditions which were accompanied by deposits of mucin in the subcutaneous tissue and were associated with thyroid gland deficiency.

In 1886 Moebius attributed exophthalmic goitre to hyperthyroidism.

In 1855, however, Claude Bernard was working on the glycogenic function of the liver. He regarded glycogen as the internal secretion of the liver and definitely showed the synthetic capacity of the body cells to produce new compounds. Thus he was led to conceive of an "internal secretion" as distinguished from external secretion and coined the new term.

In 1899 Brown-Sequard read his famous lecture before the Societe de Biologie of Paris, a lecture which gained world wide fame and acted as a new stimulus to clinical research. He particularly drew attention to the uses of testicular extracts, announcing the results of the injection of such extracts on his own person.

Pituitary syndromes are associated with the name of Pierre Marie, who in 1899 saw in Acromegaly disease of the hypophysis, and with that of

Froelich, who described dystrophia-adiposo-genitalis in 1901.

Frankl Hochwart and Marburg also studied the internal secretion of the Pineal gland.

Cushing [1] in 1912 conducted many experiments and wrote at length on the Pituitary and its disorders, and on endocrine disturbances generally. He pointed out those which occur during the periods of physiological stress, e.g. puberty, pregnancy, and the climacteric. The endocrine disorders of these great physiological periods are of special interest to psychiatrists, as they are apt to be accompanied by disorders of conduct often so grave as to be indicative of the presence of a psychosis or psycho-neurosis. Thus has been suggested a possible endocrinological basis to many psychoses, resulting in many clinical and chemical experiments being pursued in these cases, and in the formulating of ideas regarding the connection of the glands of internal secretion with different types of psychoses.

Foremost among these workers was the late Sir Frederick Mott who stimulated an eager band of followers to research and to whose pen we owe articles on the thyroid gland, [2] on the reproductive organs, [3] and on the pituitary among many others.

Professor Sir E. Sharpey-Schafer [4] has also contributed to the work. Stoddart [5] is the author of an article on the Role of the Endocrines in mental disorders and there have been numerous other researches from the clinical and pathological standpoints.

Of very recent date is an article by Shelley [6] giving some observations on Pellagra, among which is one to the effect that there is in this disease "a deficiency in thyroid secretion". This he deduces from certain clinical data giving analogies to myxoedema, and then points out that Susman [7] gave an account of the morbid anatomy and histology of two cases of Pellagra, in which the thyroid was generally fibrosed and concluded that the oldest lesion was in that gland.

Without special reference to endocrinology Kraepelin [8] led the way in pointing out the physical accompaniments of dementia praecox, the change in body temperature, in pulse rate, in the condition of the hair, skin, etc. Bruce [9] in Scotland, investigated the condition of the blood, making investigation as to its opsonic index, its coagulability, and its red and white cell counts, particularly eosinophilia. Those observers had not the

help of modern bio-chemical methods through which there have been many important developments, especially with reference to the constituents of the blood in the psychoses. The new outlook on diabetes mellitus and the necessity of taking the sugar content of the blood, led to simple methods of its estimation. Thus individual sugar tolerance could be investigated and this has been done by Mumford and Parkin and Drury and Farran-Ridge. The hydrogen ion concentration of the blood, its calcium content, cholesterol content, have been reviewed by several authorities, the Goetsch Test by Dawson, and haemoclastic crisis by Robertson, and Lovell has done valuable work in studying the surface tension of the blood serum in the psychoses. In one paper Dr. Lovell (10) states that if his theory is correct "a large number of the anxiety cases are due to a disordered endocrine balance in which the pancreas is primarily at fault".

This brief summary may serve to provide the historical outline of endocrinology, especially in relation to modern research in psychological medicine.

Nature of the Condition.

It now becomes necessary to review the conception, Dementia Praecox, from its psychological aspect, always bearing in mind the basic role of emotion and its complementary physiological reactions. Parenthetically the author would confess to the view that affect is primary and conation secondary and that the Lange-James theory is definitely controverted by the recent experiments of Golla.(1) McCowan in an essay, The Physico-Psycho-Galvanic Reflex in the Neuroses and Psychoses says "it was shown by Golla that the galvanic reflex is quite outside voluntary control. Thus it is impossible to inhibit it, and again simulated emotion fails to evoke it, while the declaiming of poetry or drama, no matter how emotional the theme, cannot call forth the reflex. The theory that the good actor actually experiences all the emotions he depicts is therefore definitely disproved."

Attention has already been drawn to the numerous symptoms of Dementia Praecox and to their variety and reference has been made to their possible combinations with a loss of emotional or affective contact with the environment as the common factor. In some cases there

is extreme apathy, in others great emotional excitement, and even in the former cases there may be sudden outbreaks of emotional violence.

Of the chief varieties of the disorder Hebephrenia, Katatonia, and Paranoid, the first is characterised by apathy and dullness: the second by fixed attitudes, and stereotyped movements: and in the third, delusions play the most prominent role.

From the standpoint of the pathological school of which perhaps the late Sir Frederick Mott was the chief exponent, the disease has been regarded as an organic degenerative one. Mott believed in 1922 that the essence of the disorder lay in degenerative changes in the sex glands and in certain of the cerebral cells. And in his Harveian Oration in 1925 he endeavoured to show that "in Dementia Praecox there is a vital defect or the reproductive organs and of the brain in particular, and probably of the whole body especially of the endocrine glands."(2) He describes histological changes in the nucleus of the cells of the cortex cerebri, the nucleus showing "a swelling with often irregular infolding of the nuclear membrane, and deficiency or absence of the basophili staining of the intranuclear network by Nissl stain. In the light of

researches on the chromosomes in relation to heredity this defect of nuclear chromatin, which occurs also in the reproductive organs, suggests a primary genetic defect" In the same Oration he states - "such causes of psychological stress as emotional shock, repression and frustration of the sex instinct, causing endocrine disturbance and insomnia, are exciting causes of the onset of disordered function of the highest level of neurones." His attempt at an explanation of dissociation by genetic inadequacy leaves one unsatisfied.

One of the cases (J. McA.) dealt with clinically in this thesis is a typical hebephrenic, and shows the phenomenon in a marked degree. He is asocial and disinterested, sits all day in a chair with his hands folded in his lap, with back bowed and chin in air. His eyelids are constantly blinking as if he suffered from a photophobia. He is careless as to his person and his table habits are almost animal. He does not work, but gives an impression of being in a world of dreams. And yet! when he is spoken to he responds readily and relevantly, is perfectly oriented for all dimensions and from time to time asks to be allowed to go home, saying he is able to work for his living. Periodically he writes to his people and does so coherently and with a superficial interest. These

letters are those of a person of normal mind. It is difficult to credit that they were produced by J. McA.

Another deeply demented patient stood in front of a photograph one day and stated it was the clearest he had ever seen, that he recognised A. - an old attendant- and that B. was his second cousin, which was really the case. Every Christmas he receives a calendar from an old war comrade, shows an off-hand pleasure in it, and on New Year's Day replaces the old calendar by the new one - entirely on his own initiative.

Neither of these cases seems to be able to experience pleasure, joy, sorrow or other emotion, or show any bodily symptoms of them. Some months ago a brother of J. McA. was admitted to this Hospital, but although J.McA. himself is oriented for place, he showed no concern as to his brother's circumstances. He asked to see him and they met, but J. did not regard his brother as ill, and after a few meetings ceased to interest himself in him. He was as one living in a world apart.

These cases are not isolated ones, but are themselves typical of the psychosis.

With such abnormalities of conduct, with such surprising mental activity in those who appear to be

deeply demented curiosity is stimulated and the desire for research is given a new spur. The pathological aspect is found to be unsatisfactory, and a psychological one comes into view. Much credit has to be given to the psychoanalytic school, and so primarily to Freud,(3) but it has to be shared with others, among whom Bleuler and Jung(4) are pioneers.

Dementia Praecox is a disorder to which a certain type of personality would appear to be subject. Jung roughly divides psychic types into two groups, the introvert and the extrovert. Introversion - the shut-in personality - is an innate peculiarity of many minds. It would appear to lead to a faulty adaptation to environment, to day dreams and to fantasy formation and to a tendency to end in Dementia Praecox. In Dementia Praecox itself we would seem to have this introversion in a pathological degree, developed to such an extent that the patient shows a total subjective pre-occupation. In Hebephrenia he is shut off from his environment, in which he takes no part, living in a world of subjective thought and hallucinations. In Katatonia, the withdrawal is pushed to a further stage - he is negative, forcibly withdrawing himself from contact or possibly

lapsing into a state of stupor when he is silent, oblivious to his organic needs, to his food, and the necessity of voiding his excreta, and anaesthetic to to ordinary stimuli. In the Paranoid type an alternative mechanism sets to work and the misinterpreted stimuli - if from within, as is frequently the case in the introvert - become the basis of delusions of organic disease or of sin; or if from without, become the basis of ideas of reference or of delusions of persecution. But in all these varied clinical pictures the common factor of emotional bebetude remains prominent. Death or disaster to their nearest relatives do not affect them, nor do they appear to appreciate joy, hope, or any pleasurable emotion. The chasm in the personality is deep and impassable.

But withal Dementia Praecox is not without hope, and changes take place for the better with often puzzling suddenness. And recovery is often humiliating, occurring at times despite, it would seem, rather than from, the efforts of the physician!

I.M. McD. was admitted to this Mental Hospital in a state of acute catatonic excitement which passed gradually into stupor. There were the usual fluctuations in her state of mind, but after four

months she appeared to be so out of touch with reality as to be deteriorating. At the urgent request of her mother, she was allowed to go home, affective contact having not yet been made. Exactly eighteen months after her discharge from Hospital, she resumed her classes at her University - classes to which her illness seemed to have put an end.

A.W. was admitted suffering from acute depression and ideas of sin and unworthiness based on sexual complexes. He was acutely hallucinated. After some months he became more "shut-in", dull, depressed, apathetic and energic. This state persisted until he developed an acute infection, influenza. There was a remarkable change in his mental state, and within a week or two he had got into touch with his environment and was discharged home.

Such cases do not lend to an easier solution of the problem of Dementia Praecox but their dramatic features indelibly impress themselves upon the mind of the physician. Those two cases, I.M. McD. and A.W. in so impressing themselves raise the problems of cause and effect of the relationship of body and mind.

It has been stated earlier in this thesis that the

dementia is often more apparent than real, and examples illustrating this fact have been quoted. But experience teaches that dementia praecox patients tend to deteriorate, the deterioration being proportionate to their environment. (5) Some authorities, viz. - Stoddart, urge that some cases of dementia praecox do better at home than in Institutions, as when at home they can receive more individual attention and are in a healthy psychological atmosphere. This is of importance when it is remembered that the symptoms of dementia praecox may be explained as due to definite psychic mechanisms. For example, the acute stage of catatonic excitement, may be explained as a vigorous counter-attack to the stimuli of reality, as evidenced by the resistiveness and negative actions of the patient. On the other hand stimuli from without may be readily adopted and the patient be hypersuggestible as is shown by the flexibilitas cerea, echolalia, echopraxia group of symptoms. The latter is the condition more easily remedied by suitable home conditions, viz. - I.M. McD. In that instance, it was against wise policy to keep the patient in bed and so encourage her withdrawal from her surroundings, it being remarked that a temporary improvement was contemporaneous with her being encouraged

to employ herself.

In the later stages of the disorder it would appear to the author that the dementia is the result of "fixation" that is, that the introverted attitude of mind becomes habitual, due to patients being allowed to fall into psychological ruts. The view is also inclined to that certain sedatives are toxic in their action and lead to deterioration through causing neuronic degeneration, are to be avoided, and that the dementia could be controlled and retarded by a more judicious use of occupational therapy.

Dr. Ryon(6) of the Hudson River State Hospital, U.S.A., is the author of an illuminating paper dealing with the advantages of occupational therapy in the habit training of mental patients. His remarks are worth quoting somewhat at length. "Because of their regressive habit tendencies dementia praecox patients are perhaps the most suitable types for habit training. Kraepelin in writing on the subject of dementia praecox states that 'what is necessary for them is occupation which alone can preserve by exercise the capabilities which still remain to them and prevent them from wholly sinking into dullness'.....Patients who wet and soil are not to be excluded (from the class) unless

these features are due to organic or physical defect."

Every individual possesses his own peculiar psychic trends, his own likes and dislikes, all of which we generically term "his interests". It is necessary to examine the basis of these interests and to treat the patient accordingly. This requires individual attention and study which is not yet possible in many Mental Hospitals. The economic standpoint is at the same time not lost sight of and the author hopes that in time it will be met by the re-education of the public and Poor Law Reform. Expansion of this thought is out of the scope of this thesis, but has arisen from the tendency of dementia praecox to regression.

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Endocrine Disorders and their Relationship to Dementia Praecox.

The endocrine glands and their specific internal secretions are of fundamental importance in governing the metabolic processes which the human body undergoes in the various cycles of its existence. Each internal secretion has its own peculiar effect on metabolism, reinforced or minimised by the secretions it stimulates or inhibits as its effects make themselves felt in the different parts of the body. They are like to the light in a fuse which travels along, setting alight many small magazines as it goes, and the fuse itself is the sympathetic nervous system. This primitive part of the nervous system, which is so closely connected with the optic thalamus, fulfils the part of binding together the endocrine glands in one long chain. It is in fact a chain laid in a circle, for, stimulate at one point, the sum total of the many stimuli so aroused repeat themselves at the original focus. Particularly is this so with the adrenal glands. The action of the two - the vegetative nervous system and the endocrine system - are so intimately related and their processes so inter-dependent that it is impossible to consider one without the other, for the tonicity

or irritability of the vegetative system is regulated through the endocrine organs.

The Autonomic Nervous System, using Langley's nomenclature, is divided into sympathetic and parasympathetic divisions.

The sympathetic division is formed by a series of ganglia lying on each side of the vertebral column, and extending from the 1st thoracic to the 4th or 5th lumbar vertebra. From these ganglia fibres pass by the spinal nerves and blood vessels for distribution to the skin, blood vessels, glands and abdominal and pelvic viscera. The chromaffin system, of which the suprarenal medulla is the largest unit is generally included as a part of the sympathetic system. The importance of their functional relationship has been referred to and is now stressed.

The general effects of sympathetic activity are those necessary to put the body in the position of quickest reaction to any temporary environment. In doing so it accelerates the heart, increases the blood supply to the muscles, and diminishes that in the superficial circulation; dilates the pupil and inhibits the activity of the gastro-intestinal tract.

With regard to this division, Cannon [1] states that it "is likely to be brought into action as a whole, whereas the sacral and cranial divisions,

arranged for particular action on separate organs, may operate in parts".

The parasympathetic consists of a cephalic portion, which proceeds from the mid-brain, and a sacral portion. The cephalic portion distributes its fibres by way of the bulbar portion of the vagus, and to a lesser extent, by the 3rd, 7th, 9th and 11th cranial nerves. Through the vagus, by far the most important part of the parasympathetic, are supplied fibres to the heart, bronchi, oesophagus, stomach, intestine and pancreas. From the sacral portion the descending colon, rectum, anus and reproductive organs, receive their supply.

The parasympathetic presents a functional antagonism to the sympathetic portion; Generally its effects are to slow the action of the heart, increase the function of the digestive tract, stimulate salivary and digestive juice secretion, and aid in the general upbuilding and anabolic activity of the body.

Another important point in this endocrine-nervous chain is that there is a dual innervation of vegetative structure. In both sections of the autonomic system there are both stimulatory and inhibitory fibres so that the end-organ receives:-

1. Sympathetic stimulatory fibres.
2. Sympathetic inhibitory fibres.
3. Parasympathetic stimulatory fibres.
4. Parasympathetic inhibitory fibres.

It is obvious that various combinations of the effects of stimulation of these fibres may be met with and so clinical pictures may be very complicated.

Eppinger and Hess [2] have described two distinct clinical types based on the antagonism of the two divisions of the autonomic system. These are the vagotonic, in which the parasympathetic predominates, and sympathecotonic, in which the sympathetic exerts the dominant action.

The symptoms of vagotonia may be enumerated thus:-

1. Contracted pupils.
2. Wide palpebral fissure.
3. Salivation and lachrymation.
4. Tendency to diarrhoea and sweating or to colic and constipation, depending on the degree of stimulation.
5. Increase of secretion, and motility of the intestine.
6. Strong, slow, and somewhat irregular pulse.
7. Low blood pressure.
8. Eosinophilia.
9. Hyperacidity.
10. Bronchial spasm.
11. Tendency to incontinence of urine and faeces.

In sympathecotonia there are usually:-

1. Tachycardia.
2. Dilated pupils.
3. Scanty Lachrymation.
4. Diminished secretion.
5. Hypochlorhydria.
6. Relaxation of muscles of intestines.
7. Increased blood pressure.

It is now generally believed that though these clinical divisions may be demonstrable in a few cases they generally are ill-defined, that symptoms of one group may be seen in combination with symptoms of the other.

Beaumont and Dodds [3] conclude that "there is probably a germ of truth in the theory of vagotonia, but it is difficult, if not impossible to accept it in toto. There is no evidence that the vegetative nervous system is normally under endocrine control... ..... Clinically, it does not appear probable that a permanent state of over-activity of one system at the expense of the other exists, constituting a pathological syndrome, although there is little doubt that the autonomic and sympathetic systems have antagonistic actions. A temporary disturbance of portions of either system undoubtedly occurs".

Viewed as a whole this nervous-endocrine system shows itself capable of many variations, there being many possible points of stimulation in the metabolic chain. And to each of these variations there is a possible clinical syndrome. Excess or lack of the internal secretion of any of these ductless glands will lead to different clinical pictures which may vary in degree as well as specifically.

Excess in view of its wide stimulatory effect leads to more widespread involvement of the whole homopoietic system, and so to more overlapping of the syndromes than is the case in glandular deficiencies, whose clinical pictures are more clearly defined and so more definitely recognisable.

It is now necessary to review some of the syndromes depending on disorders of the endocrine system.

Thyroid.

1. Myxoedema. Dwarfism, Infantilism, thickening of the skin, small pulse, rapid and irregular, constipation, subnormal temperature, loss of hair.

2. Hyperthyroidism. Tachycardia, arrythmia, lachrymation, colics, hot flushes, profuse sweats, intolerance of heat, vaso-dilation, dermographia, urticaria, amenorrhoea, emaciation, decreased sugar tolerance.

Pituitary.

The anterior lobe (hypophysis) influences growth, development and nutrition, particularly of the skeleton. Probably it acts specifically on sexual development. During pregnancy it undergoes marked hypertrophy.

The posterior lobe extract has a marked effect

on the circulation (rise in blood pressure, contraction of the blood vessels and slowing of the heart.) It has a specific effect on the uterine muscle, acts as a galactogogue, and lowers carbohydrate tolerance.

Excessive Hypophyseal Function.

1. Acromegaly. Marked hypertrophy of upper and lower extremities and of head, i.e. amenorrhoea, sweats, glycosuria.

2. Gigantism. Acromegaly in individuals in whom the epiphyseal cartilages are not yet ossified, impotence, amenorrhoea, glycosuria.

Diminished Hypophyseal Function.

Froelich's Syndrome. Failure of development of the genital organs and the secondary sex characteristics, i.e. amenorrhoea, hands have long tapering fingers, skin is smooth and delicate, scanty growth of hair, lowering of metabolism, with subnormal temperature and blood pressure, obesity and marked increase of carbohydrate tolerance.

Ovaries.

Infantilism. Amenorrhoea, absence of secondary feminine sex characteristics, obesity, scanty hair, puerility.

Testes.

Infantilism. Lack of development of the male genital organs, absence of secondary sex characteristics, obesity scanty hair, increased length of the lower extremities.

Adrenals.

(a) Medulla.

1. Hypoadrenia. (Addison's Disease). Asthenia, pigmentation, low blood pressure, subnormal temperature, vomiting, diarrhoea or constipation, hypoglycemia, and under development of the sex organs.

2. Hyperfunction. Arterio-sclerosis and increased blood pressure, heightened activity of the sympathetic nervous system.

(b) Cortex.

1. Hypofunction. Lack of sexual development.

2. Hyperfunction. Sexual precocity, increased growth of hair, increased muscular development or obesity, tendency to male type in women with marked development of hair and menstrual irregularities.

Parathyroids.

Hypofunction leads to tetany or allied conditions and diminished blood calcium. Diminished blood calcium has been found (4) to be a characteristic of catatonia and attempts have been made at treatment by feeding with calcium and extract of parathyroid.

These syndromes are generally regarded as uni-endocrine, but there is little doubt that they are largely artificial, overlapping through interaction being nature's rule. The pituitary, thyroid, testes and ovaries, and adrenals in particular, react on one another, and it is often impossible to say when a symptom is specific to any one gland.

		Hair.	Skin.	Sex Organs.	Carbo-hydrate Toler-ance.	Pulse.	Menstrual.	Blood Press-ure.	Tem-pera-ture.
Thyroid	Hyper-function.	Luxuri-ant. Fine.	Soft. Delicate. Increased perspira-tion.		-	+	Amen-orrhoea.	Moder-ate to increa-sed	Increased
	Hypo-function.	Scanty, Coarse, Brittle.	Thick. Infil-trated. Dry.		+	-	Amen.	Low.	Sub-normal.
Pituit-ary.	Hyper-function.	Heavy growth.	Thick. Dry. Wrinkled.	Large sex organs.	-		Amen.		
	Hypo-function.	Scanty.	Soft. White. Deli-cate.	Sex chars. of op. sex - Small.	+		Amen.	Normal to low.	
Adren-als.	Hyper-function.	Hirsute, Beard in fe-male.		Male chars. in fe-male.		+	Irregu-lar.	+	
	Hypo-function.	Scanty.	Pigmen-ted.	Poorly devdop-ed.	+	-		-	

The series of cases under review in this thesis shows many of the above symptoms and evidence of endocrine disorder.

Among the catatonics I.M. McD. may be taken as the example, and from the notes of her case which appear in the next section it will be observed that her symptoms are those of a hypoendocrine condition - hypoglycaemia, vaso-motor disturbance and a flat adrenaline curve together with amenorrhoea.

J.E.R. shows symptoms of pituitary disturbance in his stature and the abnormal length of his long bones.

M.A.M. - Hirsute, dermatographia, slow pulse.

M.M. - Vaso-motor disturbance subject to urticaria and localised oedemas.

D.B. - Profuse salivation of catatonic stupor, dilated pupils, bradycardia, faulty habits, eater of filth.

Of the endocrine organs the suprarenal cortex is probably one of the least understood but in a recent contribution, Gibbs (5) concludes "that some disturbance of lipoid metabolism may occur in dementia praecox and may involve the suprarenal cortex". This is suggested to him by evidence that the suprarenal cortex is involved in disturbances of sex development and that the female sex hormone and the vitamine for reproduction are both

of a lipoid nature. He found that in "dementia praecox the blood cholesterol is unusually low and that it may be more directly correlated with the psychosis and with sex than with any other recognised factor". His study was based on an examination of forty patients with dementia praecox.

Dawson [6] gives details of eight cases of Dementia Praecox of a series of fifty cases in which an endocrine-autonomic study was conducted. Of these eight cases, three were hyperthyroidal, three hypoadrenal, one hypopituitary, and one showed no evidence of glandular disorder. In the catatonics the signs of glandular disorder were more consistent.

Mumford and Parkin [8] have published a number of observations in the fasting blood-sugar in certain mental states, including some cases of dementia praecox.

Drury and Farran-Ridge [9] have conducted investigations on similar lines and found:-

(1) Acute cases give very high and rather broad curves suggestive of the confusional type.

(2) Female acute cases give higher curves than male acute cases.

(3) Chronic cases tend to give small low curves.

(4) Again, the male chronic cases are lower than females.

I. McD. Robertson [10] reports on Blood Vascular Conditions in Psychoses and states that in a large percentage of psychotics especially those of the schizophrenic type there is a change in the equilibrium between vagus and sympathetic tonus.

All the cases in Dawson's series, previously referred to of which details were given, were males, no mention being made of female cases in which we have that important indicator of metabolism, menstruation. Here Cushing [7] might be quoted when he states in his "The Pituitary Body and its Disorders" that "the relationship of hypophyseal disorders to the physiological activities of the ovary, other than those concerned with the acquirement of adolescent characteristics is unquestionably a very close one and amenorrhoea is an early symptom whether the disorder is on the side of over-function or of under-function". During the past three or four years records have been kept of the "periods" of all female patients admitted and resident in Inverness District Mental Hospital. It has been remarked that among Dementia Praecox patients

11 cases were menstruating on admission or were in the pre-menstrual period and

5 were not menstruating at the time of admission, a period of amenorrhoea following.

It is further noteworthy that all the "chronic" cases who are still "prior" to the involution period menstruate regularly.

In the cases of the female patients of whom admission records are available and whose histories have been followed, all had a period of amenorrhoea corresponding to the acute stage of their illness lasting a variable number of months, and that amenorrhoea was followed by normal and regular catamenia. Of the five cases who suffered from amenorrhoea on admission, one had been mentally ill for ten days, one for four weeks, one for four months, and one about two years, and one "a few weeks". Three other cases had not been recorded and in this instance two had respectively been ill for four years and ten years, and one was a transfer from another Mental Hospital. These figures speak largely for themselves and would indicate that after the acute stage of dementia praecox has been passed through the patient lapses into a state of normal metabolic activity.

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Methods of examination with Notes of Cases.

During the years which saw the study and treatment of the patients whose cases are here on record, work was of necessity somewhat haphazard and governed in many instances by the attitude of the patient. Some would not submit to a routine examination of the blood sugar, others were resistive to the use of the sphygmomanometer and others to even a simple routine examination without laboratory aids. But from time to time interesting and instructive facts cropped up, and are here detailed in the course of the expounding of the different cases.

For purposes of this thesis 15 cases of dementia praecox are described, of which 9 were katatonics, 5 hebephrenics and 1 paranoid. In addition some particulars of two confusional adolescent cases are given. Records are given of the condition of:-

1. Pulse.
2. Temperature.
3. Blood pressure.
4. Hair.
5. Salivation.
6. Habits.
7. Oculo-cardiac Reflex.
8. Vaso-motor system.

In addition, Loewi's Test, a modification of the Goetsch Test, and the condition of the blood sugar were

also the subject of research in many cases. The rationale of the work requires some explanation at this stage.

Changes in skin, hair, pulse, blood pressure, temperature and menstruation have been noted in Section IV as occurring in disorders of the endocrine system.

The habits of cases of dementia praecox have also been notorious from their tendency to become faulty in the acute stage of the condition, and to the author they would appear to be due to disorders of the sacral division of the para-sympathetic system. The control of faulty habits by occupational therapy has also been referred to.

Oculo-cardiac Reflex.(1) In the normal state and in the recumbent position pressure on the eyeballs with the pulp of the finger softly for 30 seconds without pain, determines, after the lapse of a few seconds a slowing of the pulse, a lowering of arterial tension, slowing of the respiration and sometimes a feeling of nausea.

The reflex is positive when the slowing of the pulse is in excess of twelve beats a minute.

It is normal when the slowing is at least four and less than 12 beats per minute.

When the reflex is positive one speaks of vagotonia, when it is negative or inverted, of sympathicotonia.

Gillespie(2) in association with Richter and Wang

conducted an enquiry into the clinical significance of this reflex and concluded that "(1) one or two estimations of these reflex are of little significance and may actually be misleading: (2) the reflex is often very variable in the same individual:.....
(5) No relation was observed in our series of cases between the magnitude of the reflex and the prevailing mood or between the variability of the reflex and the type or variability of the mood."

Loewi's Test. Loewi[3][4] noted that after removal of the pancreas there was an increase in irritability of the sympathetic nervous system. This could be demonstrated by the fact that adrenalin would dilate the pupil, a reaction not seen in normal animals.

Two drops of 1/1000 adrenalin are instilled into the conjunctiva and the pupil is examined a quarter of an hour after. If still undilated a further two drops are instilled and the pupil is examined again later. If the pupil dilates a pancreatic lesion is suspected. Cases showing hyperthyroidism are also said to give this reaction. (Since the above paragraph was written there has appeared in the British Medical Journal (26.2.27) an Article by Hamilton Bailey on the

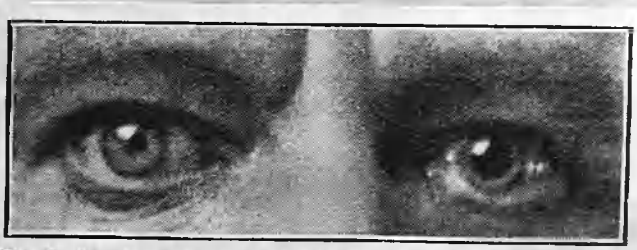

FIG. 2.—Loewi's test, a positive reaction. Photograph taken twenty hours after an operation for acute pancreatitis.

"Clinical Aspects of Acute Pancreatitis". This illustration is a photographic copy of Fig. 2 in the Article. The Author's own description is appended.)

Modification of the Goetsch Test. This test formed the original stimulus to the collection of the material which forms the groundwork of this thesis and records of its application "in some cases of mental disorder" have already been published by the author.(5) More mature reflection rather modifies old views expressed when the paper on the work was read in 1925 but they have proved a useful goad if nothing more.

Goetsch's Test is primarily intended to show the condition of the thyroid but personal experiment tends to the view that it is more useful as an index of sympathetic irritability.

It has two modifications - an intradermic(6) and subcutaneous.(7) In the former the degree of local reaction is taken as an index and in the latter the variation in the blood pressure on the injection of .5 mgm. of adrenalin into the subcutaneous tissues. Of the two the subcutaneous method would appear to be preferable, as the sphygmomanometer renders it possible to take prolonged and accurate records while attention can also be paid to the condition of the pulse and any other re-

action that may take place, e.g., flushes, rashes, pallor, sweats and no less important any subjective experiences of the patient.

The method here employed was the injection of .5 mgm. adrenalin the blood pressure being recorded previously and later at 10 min. intervals for 1 hour.

Normally, "in man the subcutaneous injection of a dose of from .5 mgm. to 1.5 mgm. of adrenalin causes within a few minutes a slight elevation of arterial pressure with pallor of the face and extremities produced by peripheral vaso-constriction. The rise of blood pressure although slow in appearing is long lasting: it is accompanied by a quickening of the pulse" (Sharpey-Schafer).(8)

Blood Sugar Estimation. Here Maclean's method was performed wherever possible as detailed in his "Modern Methods in the Diagnosis and Treatment of Glycosuria and Diabetes".(9) The method is simple and requires no special equipment nor appliances and has the advantage of requiring such small quantities of blood as will not be refused by even a psychotic.

The sugar tolerance was recorded by taking the fasting blood sugar, giving 50 gm. glucose by mouth and taking the blood sugar at intervals of 1 hour for three

hours therafter.

The following is Maclean's summary of his method:-

1. Measure 23.8 cc. acid sodium sulphate into a flask.
2. Take .2 cc. blood and add it to solution in flask.
3. Heat until boiling commences, withdraw, add 1 cc. dialysed iron, cool under tap.
4. Filter through starch free Whatman filter paper.
5. Measure 20 cc. Filtrate into special boiling flask, add 2 cc. copper iodine solution.
6. Boil mixture over standard flame for 6 minutes after boiling commences.
7. Remove from flame and cool thoroughly in cold water.
8. Add 2 cc. 25% sulphuric acid and shake gently for some time after effervescence has passed over.
9. Titrate with N/400 thiosulphate using soluble starch to determine exact end-point.
10. Note the number of cc.s thiosulphate required: subtract this from the number of cc.s required to titrate 2 cc. copper alkaline solution. Look this number up on the table and read off the percentage.

Having described in some detail the various experiments proceeded with in this study, notes on the cases are now appended. The parenthetical references are to charts in the Appendix.

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Notes of Cases.

Case No. 1. D.B., male, aged 20. Heredity, - Mother at present a patient in this Hospital suffering from chronic mania following lactation, 20 years ago. She is very degraded, faulty in her habits, bestial and impulsive.

Duration - 4 months. Said to be determined by an emotional trauma, death of grandfather to whom he was much attached. Initial stage - depression, refusal of food, inclined to brood over things, and unwilling to speak.

Since his admission on 17.11.23, he has remained in a state of catatonic stupor. He is dull and silent, negative, shows flexibilitas cerea, foolish smile and is at times impulsive. His habits are faulty, salivation is profuse, appetite voracious, and capricious: pupils pin-point. He is a typical vagotonic, so much so that attempts have been made to alter the sympathetic balance. Tr. Belladonna in 10 minim doses t.d.s. was tried for a prolonged period but with no result.

Physical. Pulse rate - 68. Systolic Blood Pressure 114 mm. Hg. Thyroid Function Test. 120 mm. 125 mm. 125 mm. 126 mm. 120 mm. 120 mm.Hg. (Chart No.1).

Sugar Tolerance Test. .094% .125%. .118%. .113% (Chart No.BS/1)

O.-C. Reflex. Vagotonic.

Loewi's Test. Positive.

Salivation profuse: Hair, thick, fine and soft: Habits - faulty.

Vaso motor system - marked dermographia: temperature - sub-normal: Secondary sex characteristics - normal.

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Case No. 2. A.F. Male, aged 18.- Heredity - negative. Admitted 12.6.26. Dull, disinterested, speaks only in monosyllables, fully oriented and wholly introverted. Since admission he has been in a state of semi-stupor, subjectively pre-occupied, depressed and agitated, with a peculiar rhythmic tremor of his whole body which he kept up for weeks on end during his waking hours. At times he has been negative and resistive and required tube feeding. He shows flexibilitas cerea, postural rigidity, is acutely hallucinated, speaks in an artificial language and says that electric light has a strange effect on his eyes.

Physical - Pulse rate, 66: Systolic Blood Pressure - 115 mm.Hg.

Thyroid Function Test - 115 mm., 112mm., 116 mm., 115 mm., 115 mm., 115mm. (Chart No.2).

Sugar Tolerance Test - .082%., .086%., .086%., .106%., .1%. (Chart No. BS/2).

O-C. Reflex - Vagotonic.

Loewi's Test - Positive.

Salivation - normal: Hair - thin and fine; habits - clean: Vaso motor system - cyanosis of extremities: temperature - sub-normal: Skin - soft and delicate.

Case No. 3. J.M., Male, aged 33. Heredity - negative. Admitted 28.11.25. Was of a cheerful and active disposition. Previous attack in America 18 months prior to admission. Patient seemed to be greatly affected by his mother's death which occurred just before he arrived home from America. On admission he was acutely hallucinated, saying he saw people in the neighbourhood who were well-known to be in America. He spoke to photographs as if they were alive. For many months after admission patient was negative and resistive and acutely hallucinated. He constantly said that he had sinned and must be born again and could not take his food till he had permission from Jesus to do so. He lay in bed moaning and wailing noisily, resisted all attempts to help him and was often semi-stuporose, silent and shut off. He salivated profusely, so much so as to make tube feeding difficult and the amount of saliva was not influenced by atropine. Gradually the patient became less actively negative and has passed into a passive stage showing postural flaccidity and flexibilitas cerea. He began to swallow the oesophageal tube voluntarily and ultimately took food by mouth. He is now enfeebled in mind, facile and suggestible, shy, retiring and will not

converse, merely smiling in a foolish, simple manner.

Physical - Pulse rate, 60. Systolic Blood Pressure,- 97 mm.Hg.

Thyroid Function Test - 97 mm., 102 mm., 80 mm., 90 mm. 90 mm., (Chart No.3).

Sugar Tolerance Test - .05%., .062%., .081%., .062%. (Chart No. BS/3).

O-C. Reflex - Vagotonic.

Loewi's Test - Positive.

Salivation - profuse: Hair - thin and dry: Habits - faulty:

Vaso motor system - dermographia.

Temperature - sub-normal.

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Case No. 4. M.M., Male, aged 27, admitted 6.5.22.

Heredity - Nil.

This patient was in Dykebar War Hospital in 1917, said to have suffered from "shell shock". He attempted suicide by cutting his throat a week prior to admission.

On admission he was depressed and stuporose and apprehensive as to his personal safety.

Some months afterwards he became more sociable, conversed freely, read the papers, worked well but remained dull and retarded and shy and easily embarassed. Gradual mental and physical deterioration set in. He became more enfeebled in mind, dull, silent and laughing foolishly to himself.

On three occasions he has suffered from localised oedemas of his face which have re-acted to the injection of adrenalin.

Physical - Pulse rate, 74. Systolic Blood Pressure - 170 mm. Hg.

Thyroid Function Test - 170 mm. 180 mm. 180 mm. 180 mm. 170 mm. 164 mm. 170 mm. Hg. (Chart No.4).

Sugar Tolerance Test - .08% .13% .08% .08% (Chart No. BS/4).

O-C Reflex - Indefinite.

Loewi's Test - Negative.

Salivation - Increased: Hair - thin, fine, soft:

Habits - Normal:

Vaso Motor System - Localised oedema:

Temperature - Sub-normal.

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Case No. 5. I.M.McD., Female, aged 19: Student.

Heredity - Negative.

Admitted 13.1.25. Patient had always been a reserved studious girl, dutiful at home and had taken a high place in her classes at the University. In March 1924, she had had a "nervous breakdown" but after a few weeks open-air treatment at home appeared to recover completely. On the morning of 6.1.25 she got out of bed, evidently in great terror and began to scream for help.

A week afterwards on admission she was mildly confused and excited and her attention could neither be attracted nor held. She was well oriented but was markedly asocial and negativistic. She sat with her eyes tightly closed and resisted attempts to open them.

14.1.25. S.B.P. 110 mm. Hg. She lies quietly in bed but when spoken to sits up and will not lie down again, becoming resistive and negative. She replies to questions in a rude, pert manner, she knows where she is but persists there is nothing wrong with her and she should not be here. She is hallucinated visually and aurally, at times sitting with her eyes closed and her fingers in her ears.

20.1.25. Condition is very variable, at times she shows flexibilitas cerea and many mannerisms. To-day she is

restless, irritable, affected and resistive. She appears to have olfactory hallucinations and to be much disgusted by all around her.

2.2.25. Refuses to speak, lies with her eyes closed, circulation poor and temperature sub-normal.

9.2.25. O.C. reflex 82 78.

11.2.25. O.C. reflex - 76-72 S.B.P. 110 mm. Hg.

12.2.25. O.C. " 80-74 " 120 " "

14.2.25. O.C. " 70-64 " 118 " "

2.3.25. Wholly out of touch with her surroundings, at times she is almost stuporose.

4.3.25. O.C. Reflex 86-74 S.B.P. 102 mm. Hg.

8.4.25. S.B.P. 106 mm. Hg. Suprarenal cortex given twice daily by mouth.

20.4.25. Appears to be deteriorating.

22.4.25. Discharged on probation at urgent request of her mother.

8.10.25. Discharged recovered.

17.10.26. Has resumed her classes at the University and appears to be in a normal state of mind.

Physical - Pulse rate - 88, Blood Pressure - 110 mm.Hg.

Thyroid Function Test - 102mm., 100 mm., 114 mm., 114 mm., 113 mm. 100 mm., 100 mm., (Chart No. 5)

Sugar Tolerance Test - .07%., .112%., .114%., .075%
(Chart No. BS/5).

O.C. Reflex - Vagotonic.

Salivation - slight increase: Hair, thin and dry:

Vaso motor system - dermographia: oedema of extremities,

Menstruating on admission but not again till discharged on 22.4.25.

Acetone in urine.

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Case No. 6. F.C., Female, admitted 17.5.23, aged 22.

Heredity - Negative.

During the eighteen months prior to admission, patient suffered from insomnia, was noisy and talked foolishly.

On admission she refused to speak, muttering and mumbling to herself and smiling foolishly. Ever since she has remained dull and silent, does no work, sitting with hands folded on lap. At times smiles in a vacant inane manner.

Physical - Pulse Rate and Systolic Blood Pressure not available - pulse not heard in antecubital fossa and not palpable.

Thyroid Function Test - Not available.

Sugar Tolerance Test - .093% .125% .1% .093% (Chart No. BS/6.)

O.C. Reflex - -

Loewi's Test - Negative.

Salivation - Normal: Hair - Thick, dry.

Habits - Faulty.

Vaso Motor System - Dermographia.

Temperature - Sub-normal.

Menstruation - no record of condition on admission. After December 1924 - regular.

Case No. 7. W.M.A., Female, admitted 4.2.24, aged 18.
Heredity - Negative.

Some weeks prior to admission, patient would begin to weep for no obvious reason, then become restless, obstinate and taciturn.

On admission, she was dull and silent, refusing to answer questions, took no interest in her surroundings, was negative and required to be spoon fed. She then passed into a state of acute Katatonic excitement in which she remained for some months. She was then irrelevant and foolish in her talk, sitting up in bed laughing and giggling - at times semi-stuporose, silent, statuesque and salivating profusely. Then she became more in touch with reality and was able to return home.

In July, 1926, the patient was returned to Hospital in a state of acute excitement. At present, she is quite detached, laughs and giggles foolishly, is elevated and affected, and refuses to speak.

Physical - Pulse rate - 60. Systolic Blood Pressure - 105 mm. Hg.

Thyroid Function Test - 105 mm. 115mm. 108 mm. 105 mm, 105 mm. 105 mm. Hg. (Chart No. 7).

Sugar Tolerance Test - .099% .12% .09% .09% (Chart No. BS/7).

O.C. Reflex - Vagotonic. 60-56.

Loewi's Test - Slight Positive.

Salivation - Increased. Hair, Thick, fine and soft.

Habits - Normal.

Vaso Motor System - Dermographia.

Menstruation - Within 5 days of admission and regular after 1 month.

Temperature.- Sub-normal.

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Case No. 8. J.M.A. male, admitted 7.4.20., aged 35. Heredity - Brother an inmate of Inverness District Mental Hospital and aunt was also insane.

Patient was depressed for some months prior to his admission, was aurally hallucinated and neglected his work.

On admission he was dull and out of touch with his surroundings but soon became fully oriented. He showed stereotyped movements and language. His conduct has shown little change and he is now fully oriented and writes relevant letters to his people at home. He sits in the same crouching attitude all day, eyes tightly closed or constantly blinking. He suffers from auditory hallucinations but will not describe them. When thinking himself unobserved he mutters and mumbles making use of neologisms.

Physical. Pulse rate, 74: Systolic Blood Pressure 130 mm. Hg.

Thyroid Function Test - 130 mm. Hg. 140 mm. 126 mm. 128 mm. 132 mm. Hg. (Chart No. 8).

Sugar Tolerance Test - .075% .15% .08% .075% (Chart No. BS/8).

O-C. Reflex - 78-70.

Loewi - Resistive. Salivation not increased.

Hair, thin and fine. Habits - not faulty, but untidy

in his person.

Vaso Motor System - marked cyanosis.

----------oOo----------

in his person.

Vaso Motor System - marked cyanosis.

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Case No. 9. K.C., male, admitted 5.7.26., aged 25.
Heredity - Negative.

Prior to admission he was dull and depressed, wished to be left alone and was distressed about the state of his soul. By occupation a policeman, his illness is said to date from his being assaulted in a riot in Dumbartonshire.

On admission he was well oriented and at times had some insight into his condition. He was subject to impulse and would suddenly jump out of bed, kneel, and pray. He thinks he is specially favoured of God. He showed verbigeration and stereotypy in a marked degree, was impulsive, resistive and required to be tube fed.

At present he is careless as to his dress, kneels to pray in pools of water at unexpected moments, answers every question put to him in a low monotone, "I don't know" "Can't say", whether the reply is relevant or not. He has now lost his original insight, is more shut off from his environment and wholly introverted.
Physical - Pulse rate 76: Systolic Blood Pressure 130 mm;Hg.
Thyroid Function Test - 115 mm. 130 mm. 125 mm. 115 mm. 115 mm. Hg. (Chart No. 9).

Sugar Tolerance Test - .09% .11% .09% .09% (Chart No. BS/9)

O.C. Reflex - 72-64 (Vagotonic)

Loewi - Negative. Salivation - normal.

Hair - thick and dry: Habits - faulty.

Vaso Motor System - dermographia and congestion of extremities.

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Case No. 10. J.E.R., male, admitted 17.11.26, aged 25. Heredity - Negative.

This patient has been admitted to this Hospital on three occasions. 1st admission, 17.11.18, aged 17. His previous history was very scanty. He was stated to have been a simple-minded and somewhat slow boy. At the time of admission he was elevated and excited and suspicious of everything round him. The chief points in the clinical picture were fantastic delusions, that he is a famous London Detective and Secret Societies are constantly in his mind. He taps the floor, makes "secret signs" to others and grimaces to imaginary people. Second admission - 19.10.22, aged 21. He is simple and facile in his conversation and tends to become surly and suspicious. He states that people talk about him, that they would have fun with him and voices call him awful names which no right thinking person would listen to. Third admission - 17.11.26. aged 25. On this occasion patient was more detached from reality, dull, apathetic and disinterested, replying to questions casually and unemotionally. He is well oriented for all dimensions, but at times he is resistive and refuses his food, and is extremely care-

less and faulty in his habits. He lies in bed motionless, silent with eyes closed in a state of partial stupor.

Physical. Pulse rate, 60: Systolic Blood Pressure - 116 mm. Hg.

Thyroid Function Test - 116 mm. 122 mm. 130 mm. 140 mm. 114 mm. 118 mm. Hg. (Chart No. 10).

Sugar Tolerance Test - .068% .131% .086% .08% (Chart No. BS/10).

O-C Reflex - Vagotonic.

Loewi's Test - Negative.

Salivation - no increase : Hair - thin, soft, fine.

Habits - faulty:

Vaso Motor System - Dermographia.

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Case No. 11. M.A.M., female, admitted 17.12.26, aged 27. Heredity - Grandmother.

In February, 1925, patient became "serious" in manner and used to sit up late reading the Bible. She complained of headache and sleeplessness, was dull and depressed, but was "at times too lively".

Prior to admission, she sat in the house and neglected her work, even the food cooking on the fire. She moped for hours idle and silent. She suffered from hallucinations saying she saw her mother who had died some years before. On admission she was quiet and facile well oriented for all dimensions, but her memory was sluggish and required strong stimulation. Her answers to questions were off-hand and at times irrelevant. On 18.12.26 she laughed and giggled in a foolish manner and for no obvious reason, staring vacantly in front of her and at times chattering as if in reply to hallucinations. Her affective state is purely negative, there being little or no obvious feeling-tone of any kind. She is not the least concerned as to her whereabouts, shows no anxiety about her people or home and takes no interest in anything around her. She sits in a chair giggling at times quite shut off from her environment.

Physical - Pulse rate 60: Systolic Blood Pressure - 104 mm. Hg.

Thyroid Function Test - 104 mm. 108 mm. 102 mm. 102 mm. 102 mm. Hg. (Chart No. 11).

Sugar Tolerance Test - .08% .1% .085% .08% (Chart No. BS/11).

O-C. Reflex - Vagotonic.

Loewi's Test - Negative.

Pupils contracted and eyes sunken in orbits. Hair - face hirsute:

Vaso Motor System - Dermographia and extremities congested. Menstruating on admission. Habits - Tidy.

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Case No. 12. K.M.R., Female, admitted 10.3.25, aged 22. Heredity - Denied.

Patient was admitted in a state of Katatonic excitement - acutely hallucinated, voices of children calling her names and talking of her. She suffered from persecutory ideas directed against many persons. She was menstruating on admission, but for sometime previously had suffered from amenorrhoea which had so disturbed her mattoid parent that surgical interference had been resorted to. As referred to in the previous section of this thesis, a period of amenorrhoea again occurred but at the time of writing - March, 1927 - patient had been regular for some months.

She is foolish and facile in her conversation, is aurally hallucinated and talks to herself, is off-hand in her manner and has bursts of foolish laughter.

Physical. Pulse rate - 80. Systolic Blood Pressure - 110 mm. Hg.

Thyroid Function Test - 110 mm. 120 mm. 115 mm. 110 mm. 110 mm. 110 mm.Hg. (Chart No. 12).

Sugar Tolerance Test - .093% .098% .08% .08% (Chart No. BS/12).

O.C. Reflex - 68-60 Vagotonic.

Loewi's Test - Negative.

Salivation - Normal: Hair - thick, fine and dry:

Habits - normal.

Vaso Motor system - Dermographia.

Temperature - Normal.

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Case No. 13. A.B.E., female, admitted 17.10.25. aged 23.

Heredity - Mother, maternal aunt and cousin insane. Patient comes of an inbred fisher stock, which has supplied many patients to this Hospital.

On admission she was morbidly shy and retiring and without interest in her surroundings. Her affective state was one of elevation and her manner affected and haughty.

She has remained decidedly schizophrenic, distrait and absorbed in fantasies - does not employ herself in any way and is aurally hallucinated. She states she is of royal blood "the right hand of the King, the Queen of Heaven".

Physical - Pulse Rate 76-66, Systolic Blood Pressure 112 mm.Hg.

Thyroid Function Test. 112mm. 125 mm. 120 mm. 120 mm. 115 mm. 112 mm. Hg. (Chart No. 13.)

Sugar Tolerance Test - .078% .1% .09% .078% (Chart No. BS/13).

O.C. Reflex - 66-60 Vagotonic.

Loewi's Test - Negative.

Salivation - Normal. Hair - Thick, fine. Habits - normal.

Vaso Motor System - Dermographia.

Menstruation - Nil on admission: regular after three months.

Temperature. Sub-normal.

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Case No. 14. E.M.D. female, admitted 6.5.24. aged 18. Heredity - Negative.

On admission patient was grossly confused, totally disoriented, rambling and incoherent in her conversation and hallucinated both visually and aurally.

Clinical details are now appended.

Date.	Urine.		Sleep.		
10.5.24	20 ozs.		5 hrs.	Refusing food.	
11.5.24	Nil.		7		
12.5.24	33 ozs	Catheterised	8		
13.5.24	9 ozs	"	4		Acetone.
14.5.24.	17 ozs	"	7	Sugar ½lb daily	Do.
15.5.24	16 ozs	Voluntary		" " " less	Do.
16.5.24		"		Taking food voluntarily	Nil.
17.5.24.		"		"	Nil.
18.5.24		"		" Menstruating	Nil

19.5.24. During the past 24 hours she has passed no urine, is more confused but is taking food voluntarily. She required to be catheterised but no acetone was present in the urine. Until to-day improvement had been progressive.

24.5.24 To-day put on Extract Thyroid Course.

19.6.24 The Thyroid Course was not successful. The patient became more restless and again toxic, excreting acetone.

13.8.24 She remains grossly confused and suffers from furunculosis.

2.2.25 Now on Extract of Pituitary 6 grs daily. Brighter mentally. She converses rationally and coherently but is simple facile and retarded. She is putting on weight. O-C Reflex 82-74.

18.3.25 Sugar Tolerance Test - .1% .2% .16% .18% (Chart No. BS/14).

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Case No. 15. K.B., Female. Admitted 21.8.24. Aged 18.

Heredity - Negative.

On admission patient present a clinical picture of confusion with hallucinations. She was restless and somewhat elevated, her attention difficult to hold and she was absorbed in her hallucinations which were of a marked erotic colouring.

The confusion rapidly cleared up, with a short, sharp relapse at the next menstrual period. There was left a marked defect, patient being very facile and retarded in thought. The defect appeared to be more conative than affective.

Physical - Pulse rate - 80. Systolic Blood Pressure - 100 mm. Hg.

Sugar Tolerance Test - .125% .285% .2% .225% .16% (Chart No. BS/15)

O.C. Reflex - Vagotonic. 84-78.

Menstruation - Regular on admission until discharge.

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Case No. 16. C.M.N., Female. Admitted 19.1.27. Aged 22.

Heredity - Uncle and grand-uncle were insane.

No previous history was obtainable and the onset of the illness was stated to be acute. The medical certificates stated that the patient was very excitable and laughed and screamed for no obvious reason. She was disoriented and spoke nonsense about her love affairs.

On admission she was dull and silent, was irrelevant in her replies to questions and was only partially oriented. Within a week she became normal in her conduct, fully oriented and relevant in conversation, and was amnesic for the previous ten days. Within two days she had relapsed becoming elevated, laughing and disconnected in her conversation and showed increased psycho-motor activity. Ten days afterwards she became stuporose, lying like a log in bed, smiling to herself but quite silent. At times she has been impulsive and hallucinations are a prominent feature of the clinical picture.

Prominence of the thyroid gland, slight exophthalmos and the long, fine, silky hair suggested a thyroid syndrome in the early stages of the illness, but though these symptoms persist, others have appeared which make that view-point less striking, e.g. a negative Goetsch (the intra-dermic test was here done as a control), and the flat blood-sugar curve.

Physical - Pulse Rate - 88. Systolic Blood Pressure 115 mm.

Thyroid Function Test - 115 mm. 125 mm. 115 mm. 105 mm. 105 mm. (Chart No. 14)

Sugar Tolerance Test - .08% .09% .08% .075% (Chart No. BS/16)

O.C. Reflex - Vagotonic 88 - 68.

Loewi's Test - Negative. Pupils dilated, slight exophthalmos.

Salivation - normal. Hair - long and silky.

Habits - normal.

Vaso-motor System - Dermographia.

Menstruating on admission.

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Case No. 17. C.M.M., Female. Admitted 22.3.27. Aged 28.

Heredity - Negative.

This recent case is recorded as an additional one of stupor. She is dull and depressed, shows no interest in her surroundings but is wholly self-absorbed. She does not converse at length and replies to questions are monosyllabic and monotonous and almost inaudible.

Physical - Pulse Rate - 74.

Systolic Blood Pressure - 120 mm. Hg.

Thyroid Function Test - 120 mm. 130 mm. 125 mm. 120 mm. 120 mm. 120 mm. Hg. (Chart No.15)

O-C Reflex - 74-68, Vagotonic.

Loewi's Test - Negative.

Salivation - Normal. Hair - thin and dry. Habits - normal.

Vaso Motor System - No lividity or cyanosis, slight dermographia.

Menstruation - seventh day after admission and since regularly. It is to be noted that this patient had been mentally ill for some months prior to admission.

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		Name.	Pulse	Temperature.	Blood Pressure.	Vaso Motor	Hair	Habits.	Salivation.	O-C Reflex.	Loewi's Test.	Goetsch Test	Blood Sugar.
CATATONICS.	Males.	D.B.	63-74	95°F / 98°F	112 mm.	+ Dermographia.	Thin, fine, Soft	Faulty.	+	Vago-tonic	+	Flat Curve	Flat Curve.
		A.F.	66-72.	Sub-normal.	115 mm.	Cyanosis of Extremities	Thin, fine.	Normal.	Normal.	Vago-tonic.	+	Flat Curve.	Flat Curve.
		J.M.	Sub-normal. 54-64	Sub-normal. 96°F-97°F	97 mm.	Slight Oedema of Extremities	Thin, Dry.	Faulty.	+	Vago-tonic.	+	Slight rise with rapid fall.	Flat Curve.
		M.M.	74-78	Sub-normal. 96°F-97.8°F	170 mm.	Oedema Massive Urticavia	Thin. Fine Soft.	Normal.	Slight Positive.	Indefinite	Negative	Flat Curve.	Sub-normal rise.
	Females.	I.M.McD	88	—	110 mm.	Dermo-graphia. Oedema.	Thin, Dry.	Faulty.	+	Vago-tonic.	—	Delayed rise.	Flat Curve.
		F.C.	64-72.	Sub-normal. 95°F-97.4°F	—	Dermo-graphia.	Thin. Dry.	Faulty.	Normal.	—	Negative.	—	Slight rise.
		W.M.A.	66-80	Sub-normal. 95°F.	105 mm.	Dermo-graphia	Thin. fine Soft.	Normal.	Slight Positive.	Vago-tonic.	Slight Positive.	Slight rise.	Flat Curve.
HEBEPHRENIAS.	Males.	J.M.A.	74	97°F-98.4°F	130 mm.	Marked Cyanosis of Extremities	Thin fine.	Untidy-not faulty.	Normal	Vago-tonic.	—	Slight rise.	Slight rise.
		K.C.	72-76.	Sub-normal. 95.2°F-97.4°F	115 mm.	Dermo-graphia	Thick, fine, Silky	Faulty.	Normal.	Vago-tonic.	Negative.	Slight rise.	Flat Curve.
		J.E.R.	60-65	96°F-98°F	116	Dermo-graphia	Thin Soft Fine.	Faulty.	Normal.	Vago-tonic	Negative	Delayed Response	Sub-normal rise.
	Females.	M.A.M.	60	96.2°F-97.6°F	118	Dermo-graphia. Extremities Congested	Face Hirsute.	Normal.	Normal.	Vago-tonic.	Negative	Flat Curve.	Flat Curve.
		K.M.R	84-90	96.8°F-97°F	90	Dermo-graphia.	Thick Fine.	Normal.	Normal.	Vago-tonic	Negative	Flat Curve	Flat Curve.
PARA-NOID	Female.	A.B.E.	70-78	96°F-98°F	112	Dermo-graphia	Thick. Fine.	Normal.	Normal.	Vago-tonic	Negative.	Flat Curve.	Flat Curve.
ADDITIONAL CASES. Confusional Cases.	Females.	E.M.D.	-	—	—	—	—	—	—	Vago-tonic	/	—	Increase of Blood Sugar
		K.B.	80	—	100	—	—	—	—	Vago-tonic	—	—	Increase of Blood Sugar.
STUPORS.	Females.	C.M.N.	88	98.4°F	115	Dermo-graphia	Long, Silky	Clean.	Normal.	Vago-tonic	Negative	Slight rise.	Flat Curve.
		C.M.M.	74	Sub-normal.	120	Dermo-graphia	Thin Dry.	Clean.	Normal	Vago-tonic	Negative	Slight rise.	Flat Curve.

Summary of Observations.

The observations on the individual cases have been reduced to tabular form, but it will be to advantage to summarise them under their various headings:-

Pulse Rate and Temperature are very variable but generally lowest in stupor and highest in the hebephrenic-paranoid scale.

Systolic Blood Pressure is very variable from case to case and so of itself of little significance.

Vaso Motor System - All degrees of instability are shown but are most pronounced in long standing cases and in stupor.

Hair is of a peculiar downy character, soft and silky but of no great length and tends to be thin. It is not characteristic of any endocrine defect.

Habits are dependent on the degree of stupor.

Salivation also dependent on the degree of stupor.

O.C. Reflex - The reflex is vagotonic in all cases, except M.M., but in none is the extreme variation in pulse rate found as described by Lavastine and various authors, despite the undoubted defect of the Sympathetic Nervous System.

Loewi's Test is negative except in the stupors. It is in all cases so indefinite and fleeting, though undoubtedly positive where it is so, that it is not probably due to disorder of either thyroid or pancreas.

Thyroid Function Test (Goetsch) is negative as regards the thyroid in dementia praecox, and is rather an index of a decreased sensitivity of the sympathetic nervous system. The curve is always flat but varies with the degree of detachment from reality and stupor (except in case of J.E.R., delayed rise possibly due to pituitary) Sugar Tolerance Test. The fasting blood sugar is lowest in the stupors, but the tolerance curve is at all times flat, except in the case of J.M.A. (Chart No. BS/8) where it approaches a normal height at the end of the first hour. It may be noted that J.M.A. is more in touch with his surroundings than the other hebephrenics. In cases No. 14 and No. 15 Blood Sugar Curves (Chart No. BS/14 and Chart No. BS/15) are of the hyperthyroidal type.

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Conclusions.

From the observations on the series of cases recorded in this thesis it would appear to follow:-

1. There are no evidences of an endocrine basis to the entity Dementia Praecox, other than might be accounted for by

2. Abnormality of the Sympathetic Nervous System. This abnormality is shown by the increased salivation, abnormal pulse rate, vaso-motor instability, the type of Goetsch curve, the blood sugar curve and the vagotonic oculo-cardiac reflex and in many cases the faulty habits. The menstrual abnormality pointed out in the previous section might also be cited as additional evidence. In the case of D.B. (Case No. 1) and J.M. (Case No. 3) the futility of atropine in treatment is of moment.

3. The true psychosis of adolescence is a hyper-thyroidal one. Its clinical syndrome being that of the acute confusional psychosis. The use of sugar in the treatment of such cases when acetone is present in the urine is strongly advocated.

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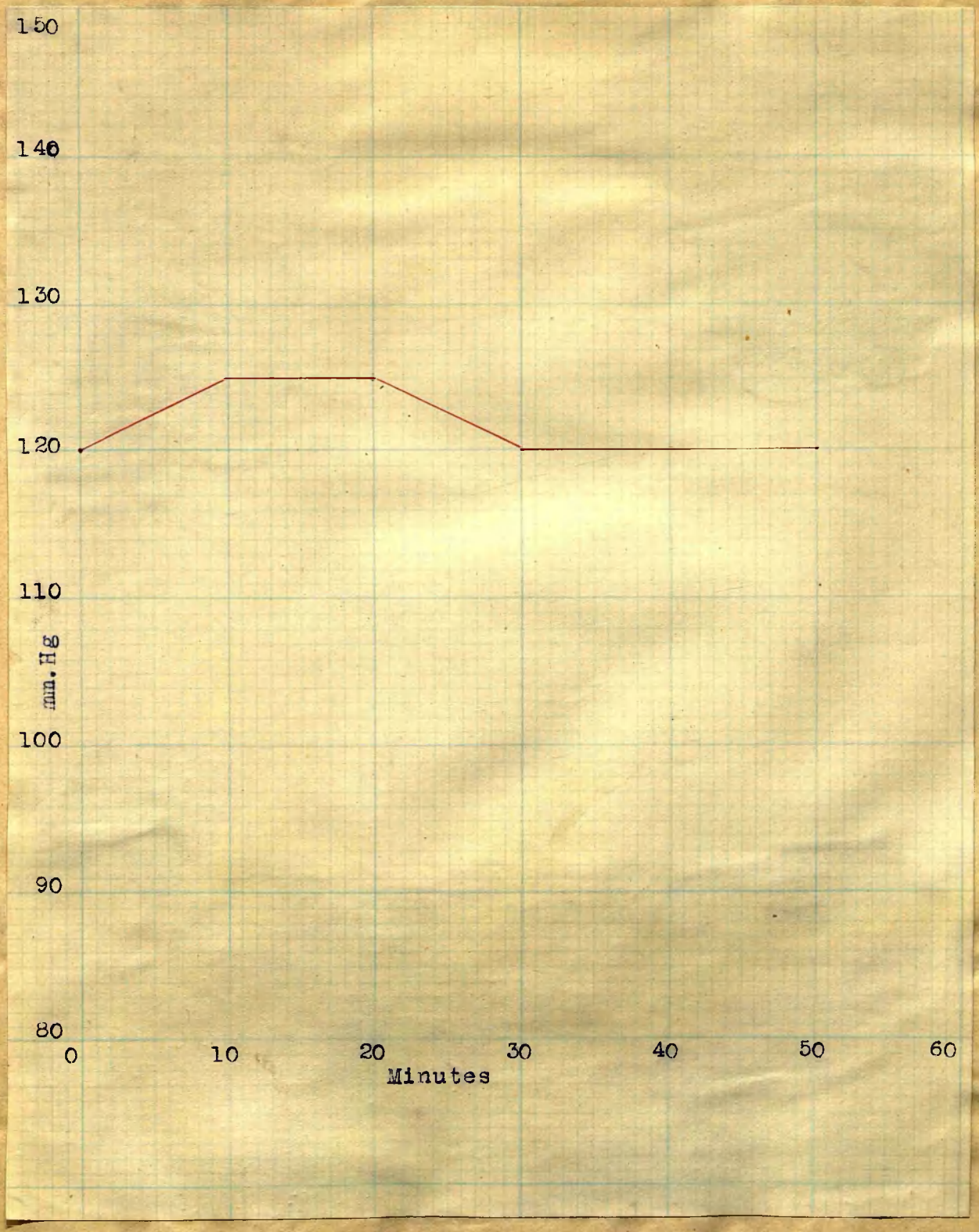

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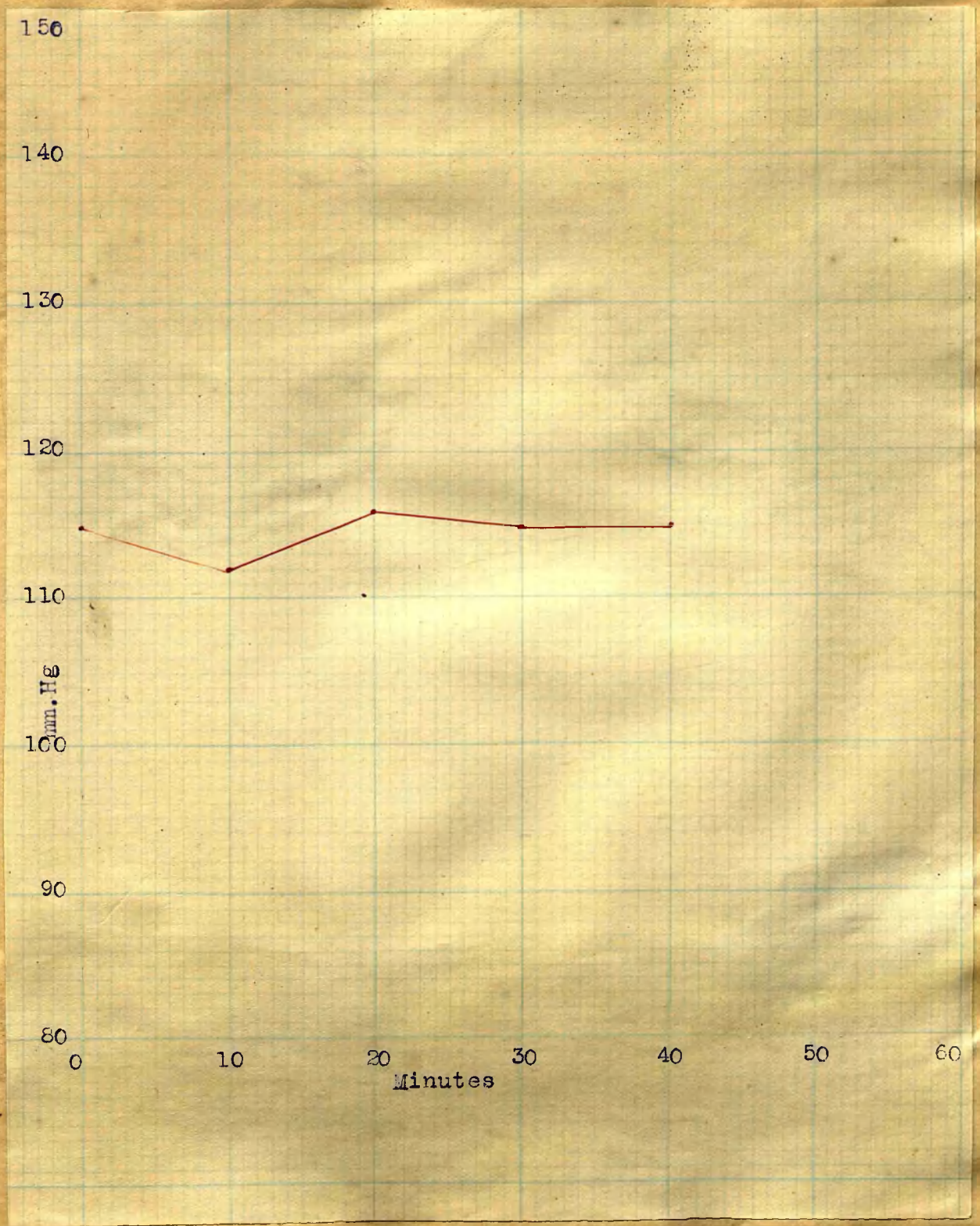

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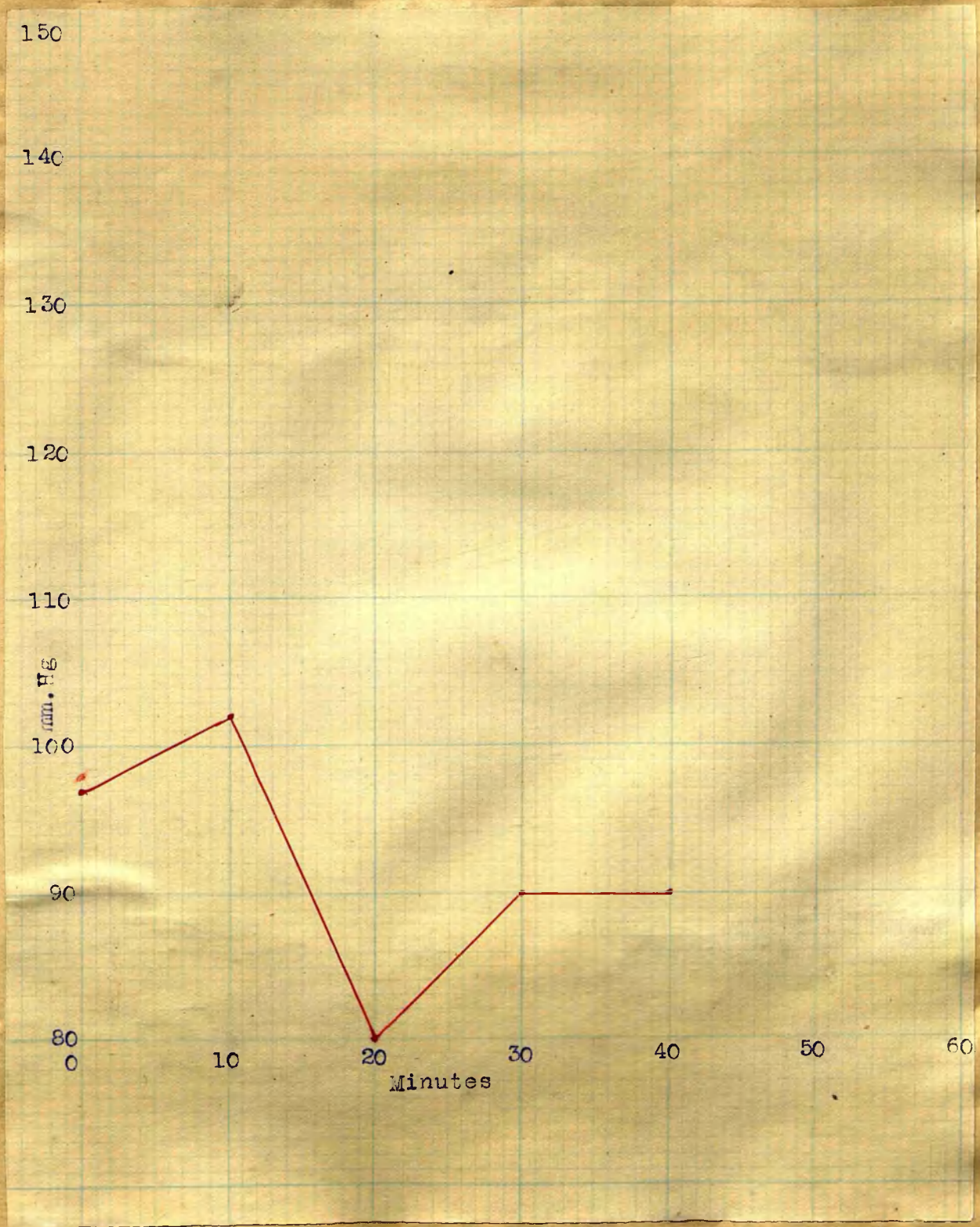

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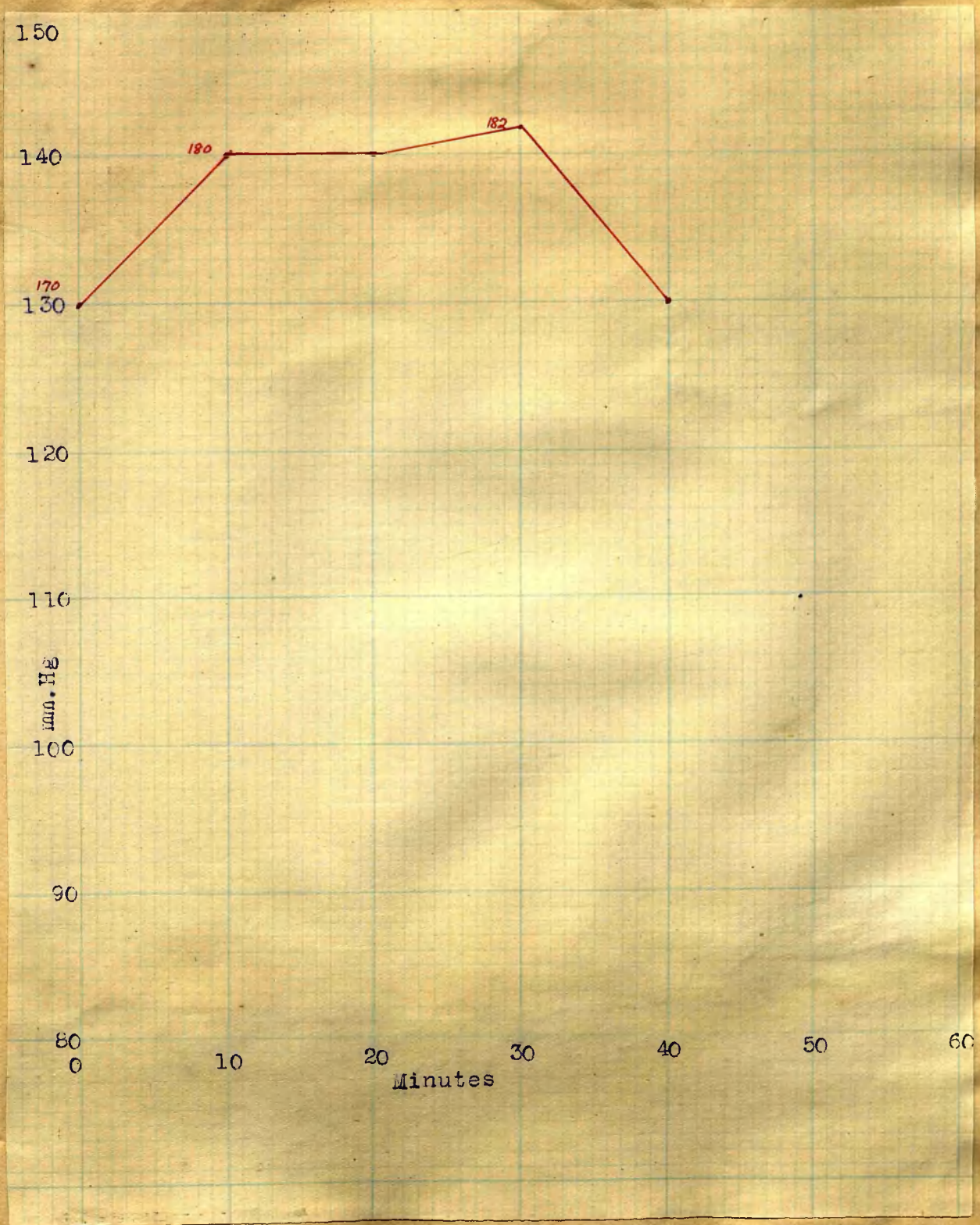
150
140
130
120
110
100
90
80
mm. Hg
170
180
182
0
10
20
30
40
50
60
Minutes

CHART. NO.5. I.M. M.D.

CHART.NO.6. F.C.

Not available - pulse not palpable and not heard in antecubital fossa - very small oscillations of sphygmomanometer needle.

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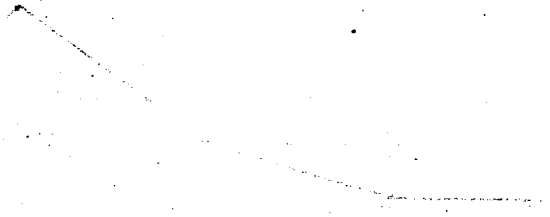

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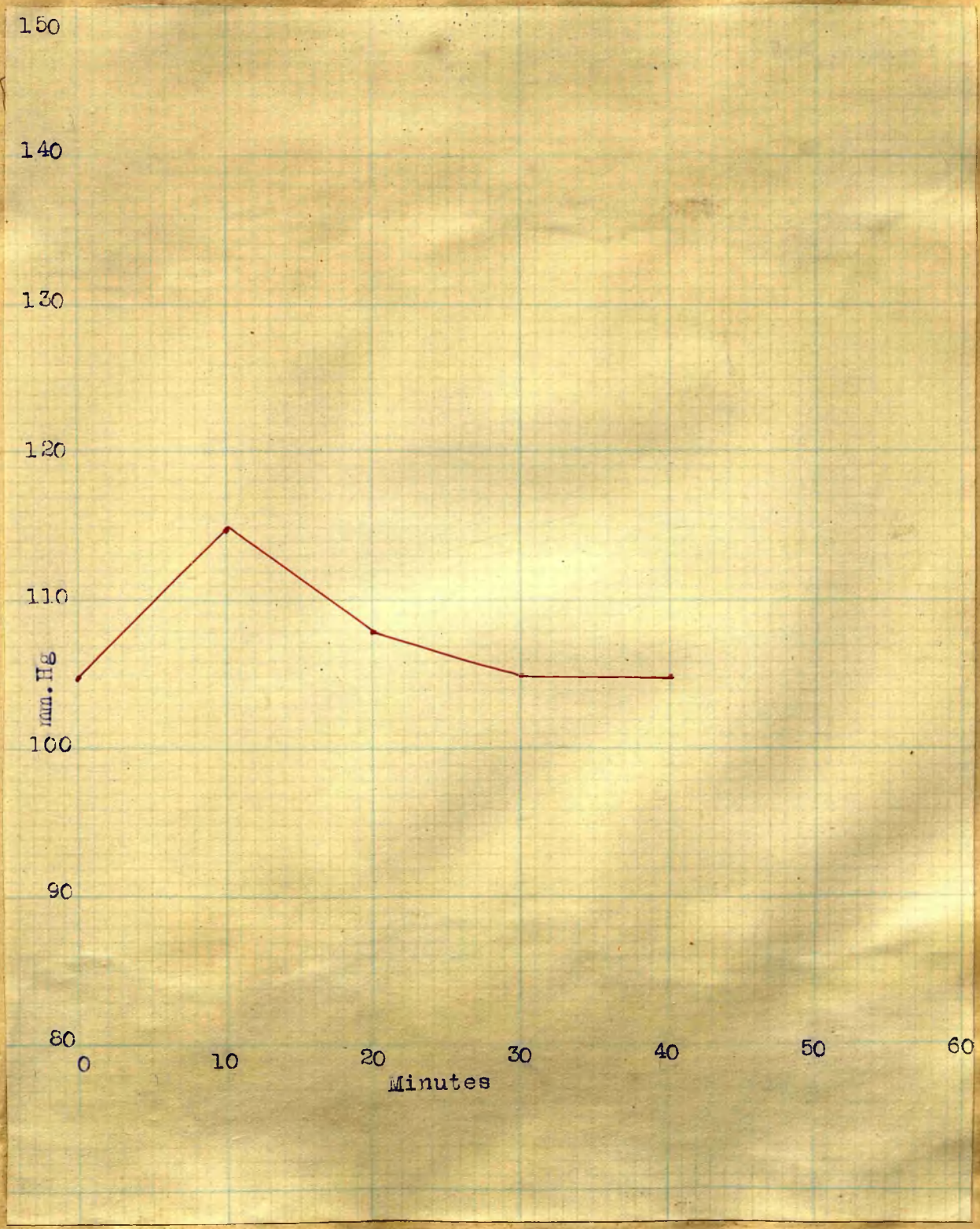

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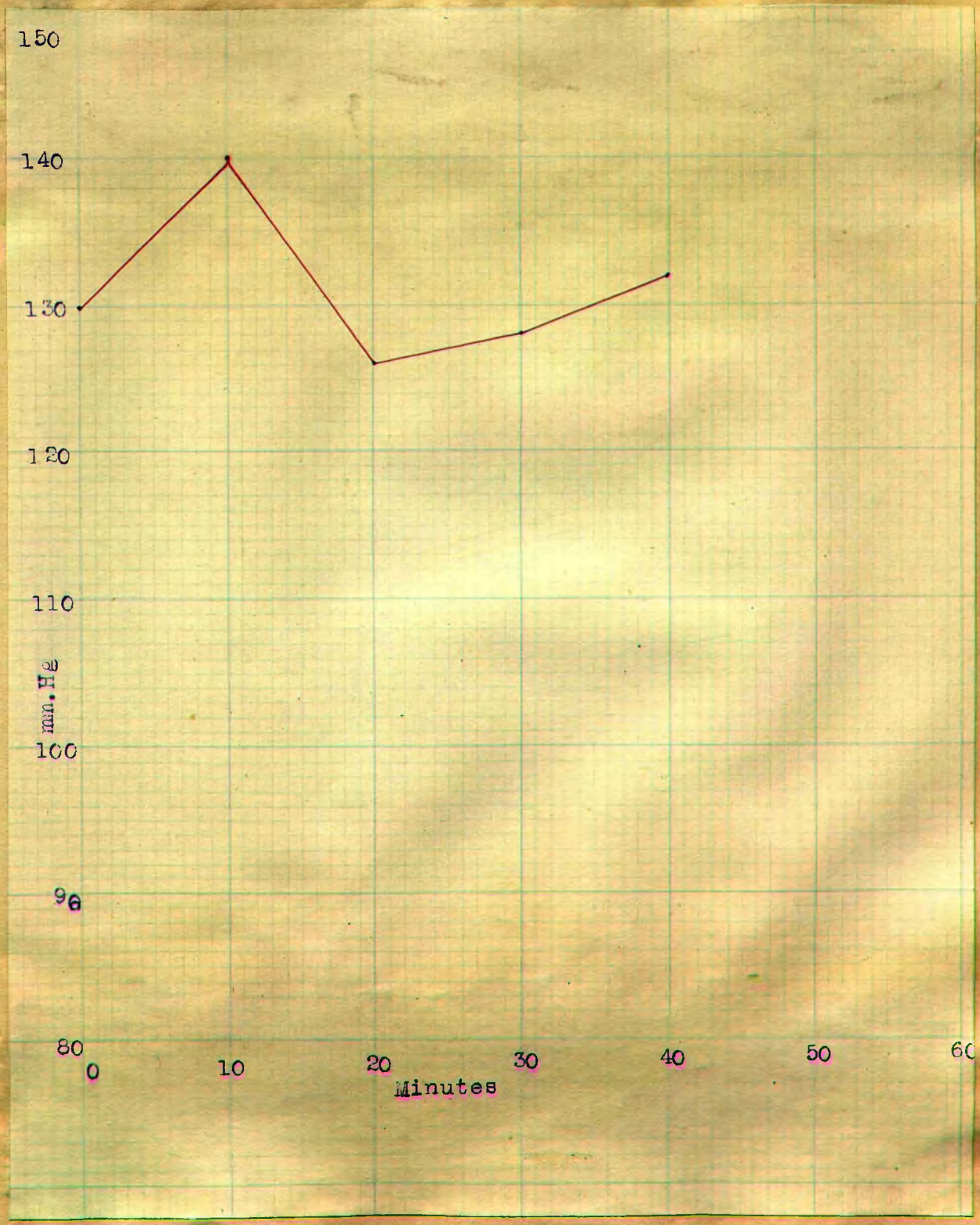

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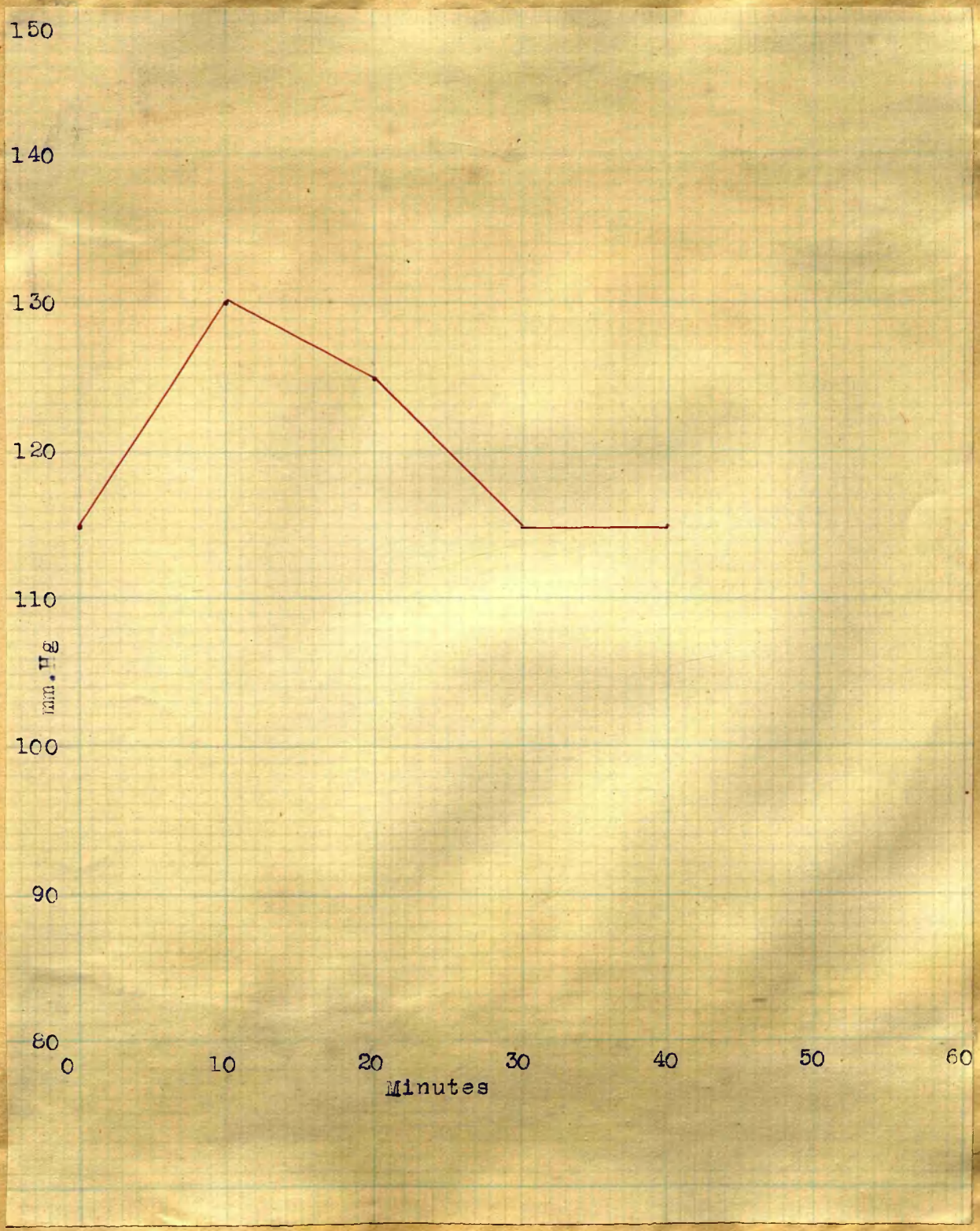

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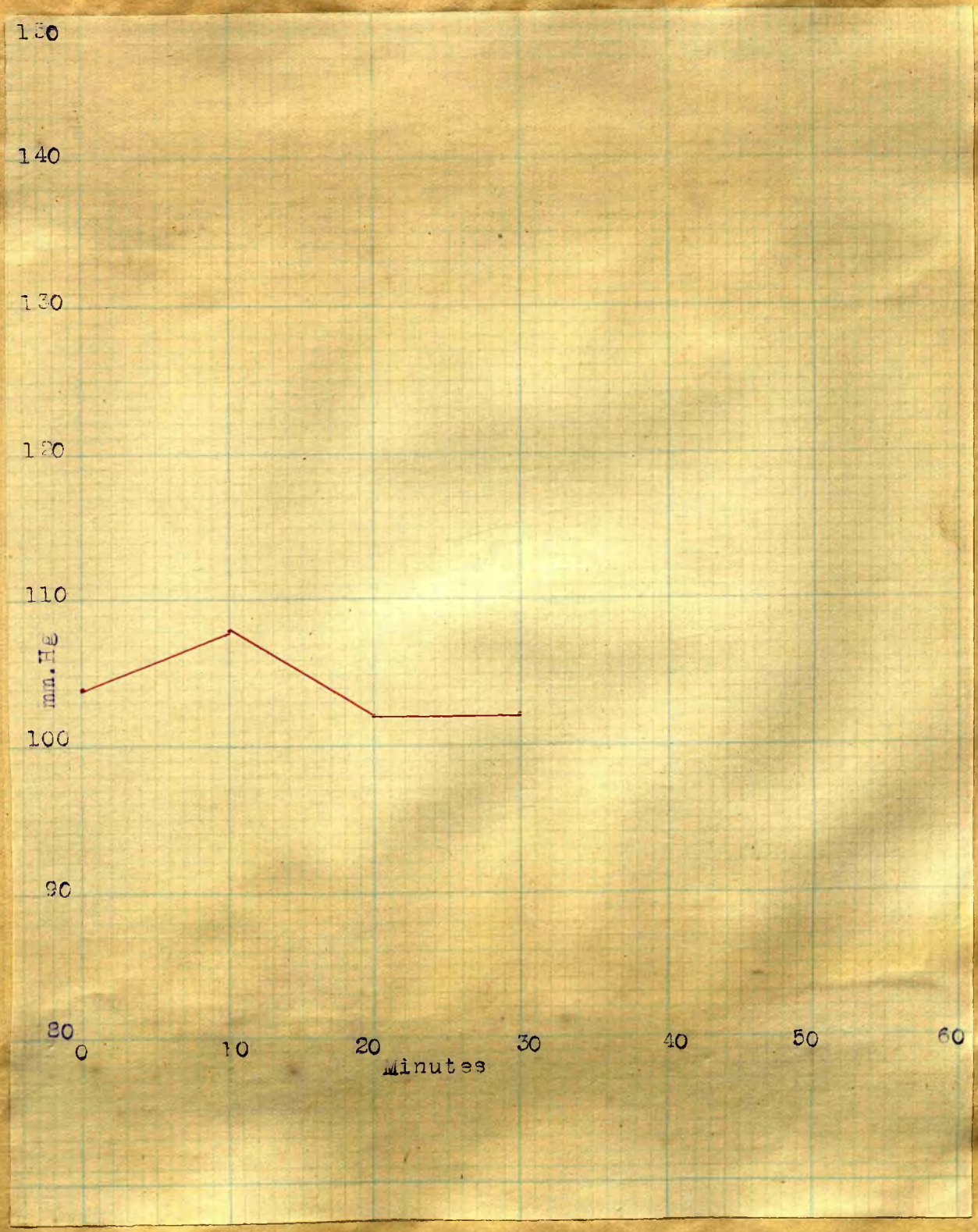

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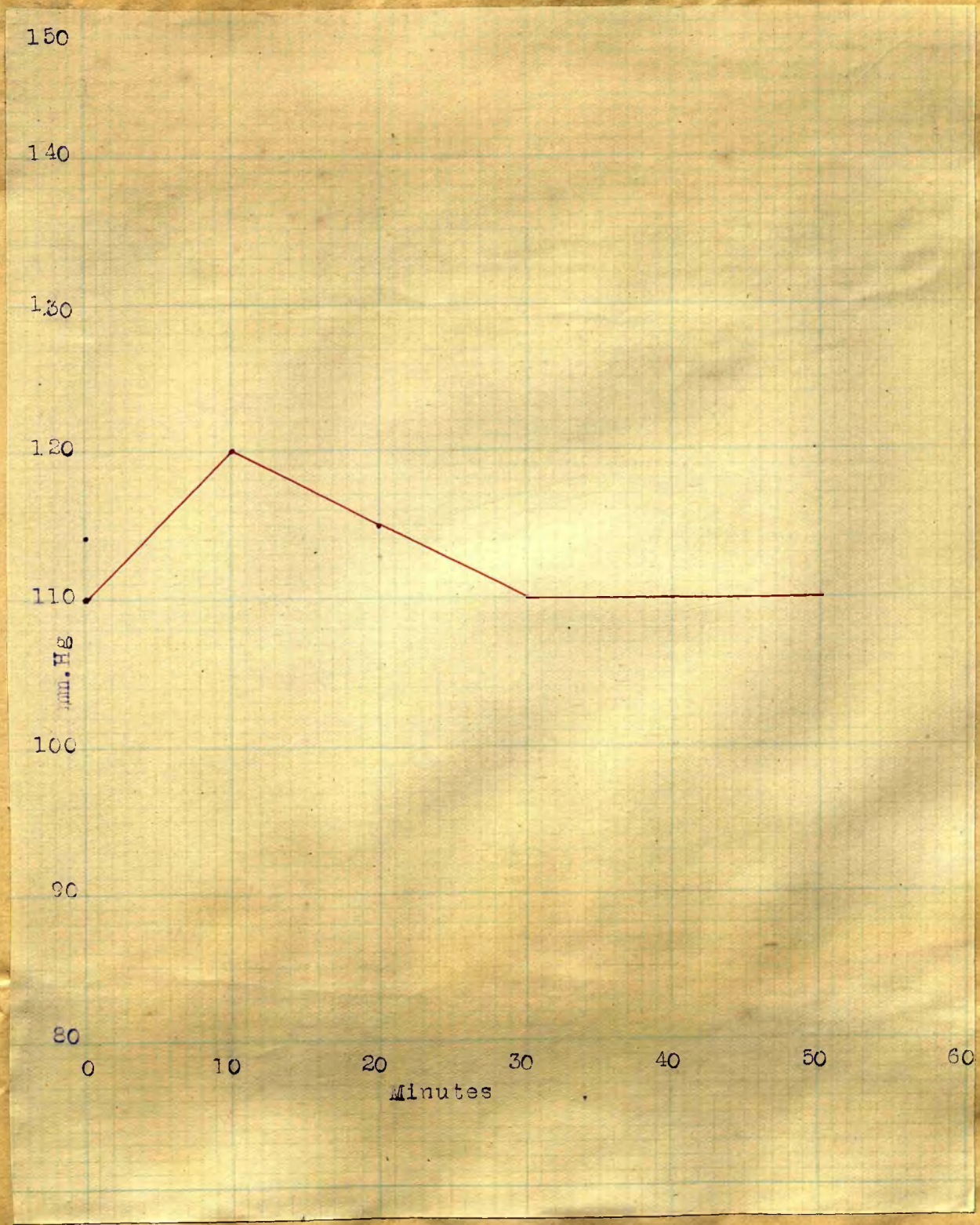

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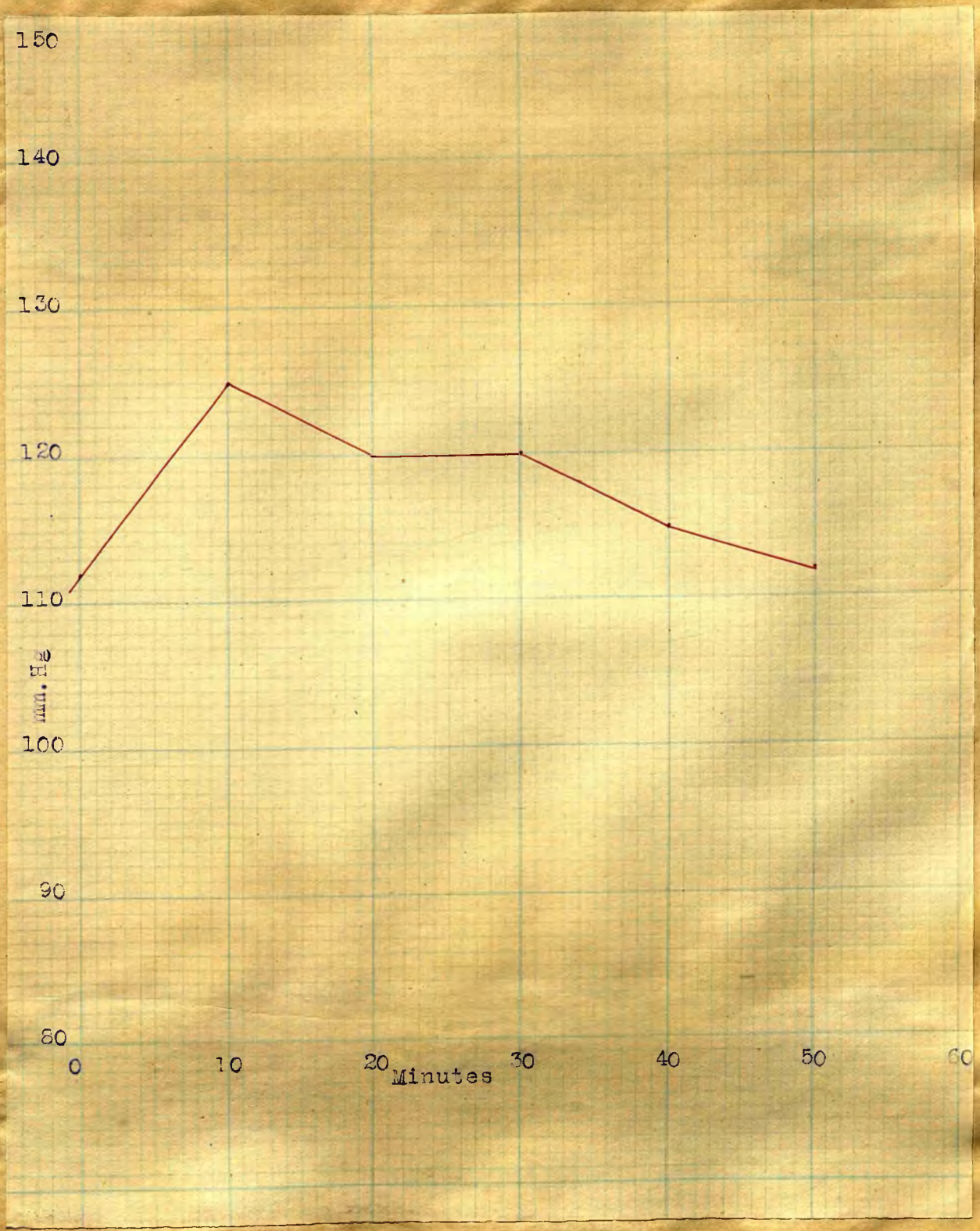

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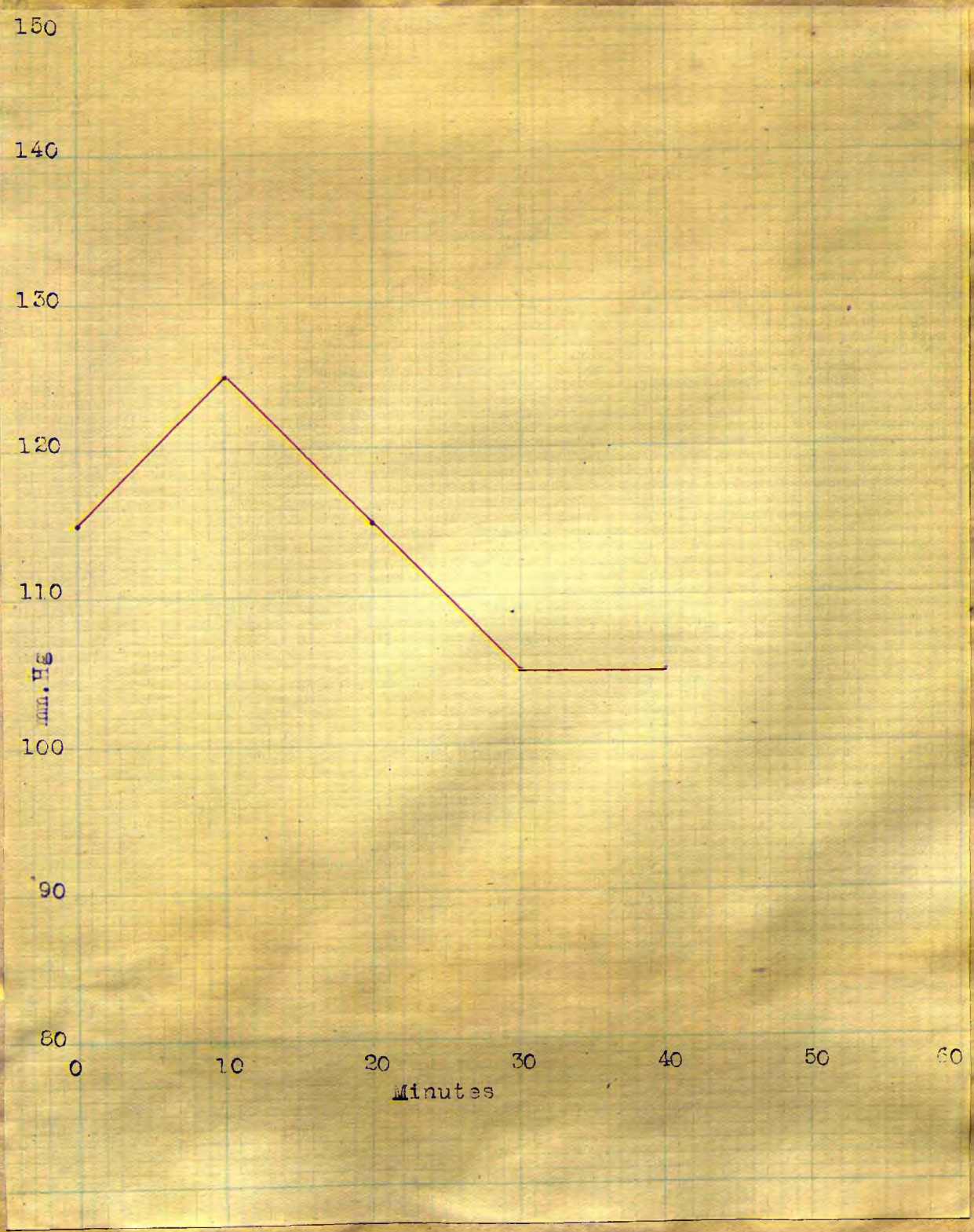

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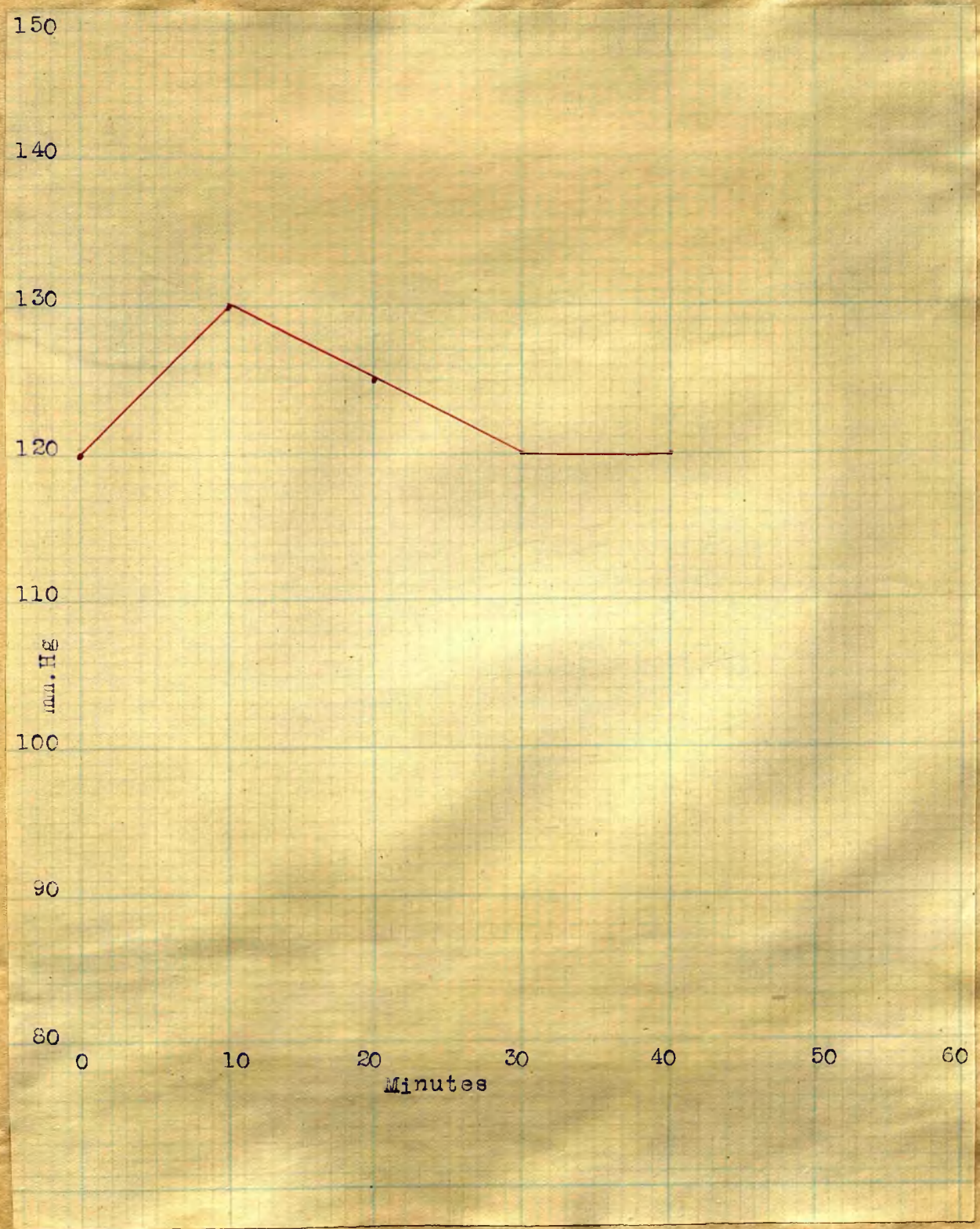

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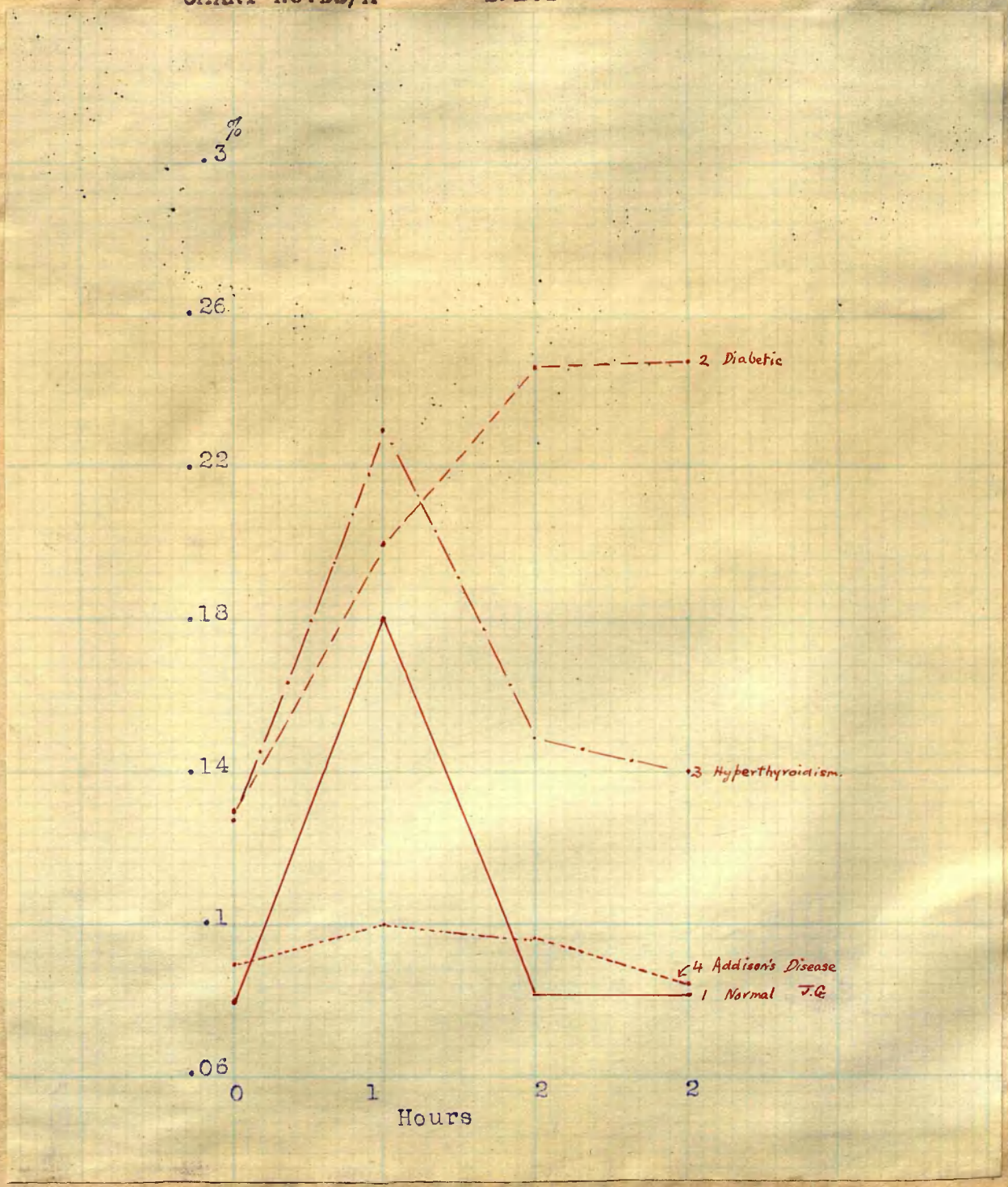

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Curve No.2 - Diabetes.Chart 2.Maclean's "Modern Methods in the Diagnosis and Treatment of Glycosuria and Diabetes.
Curve No.3 - Hyperthyroidism. Fig.92. Hawk's "Practical Physiological Chemistry."
Curve No.4 - Addison's Disease. Fig.92. Ibid.

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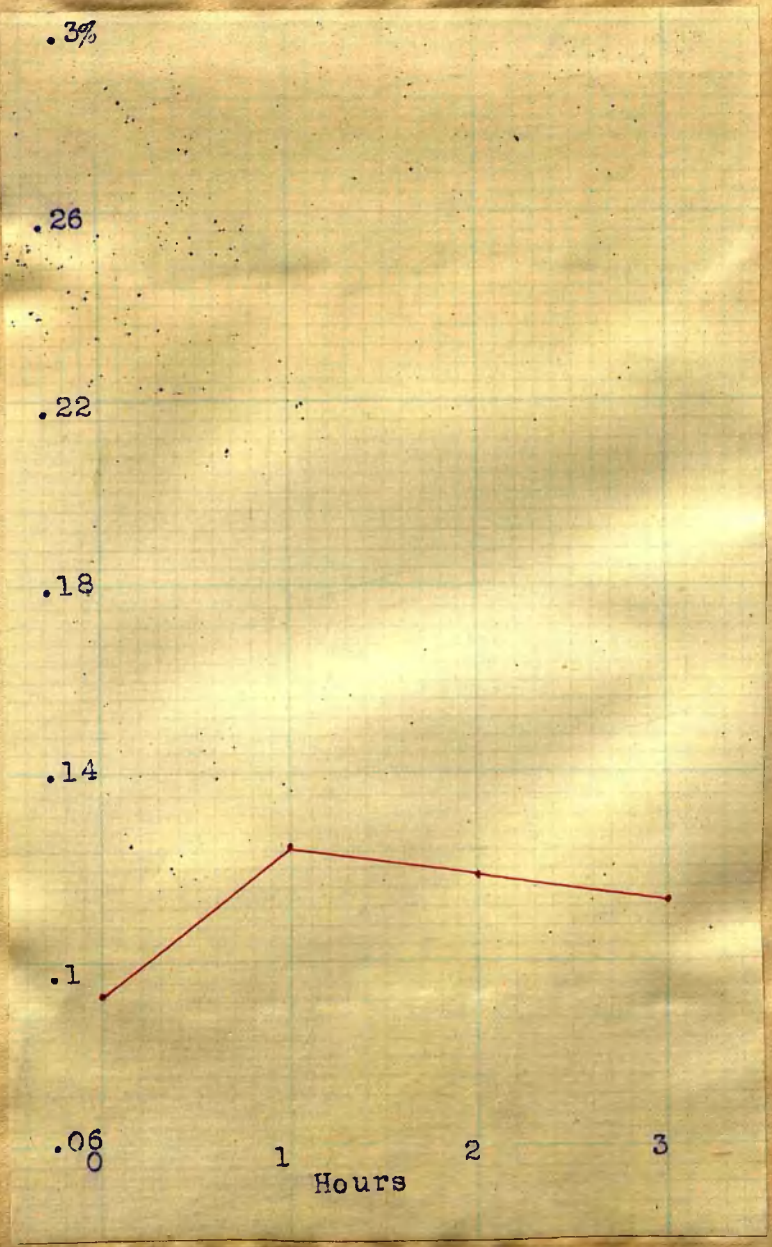

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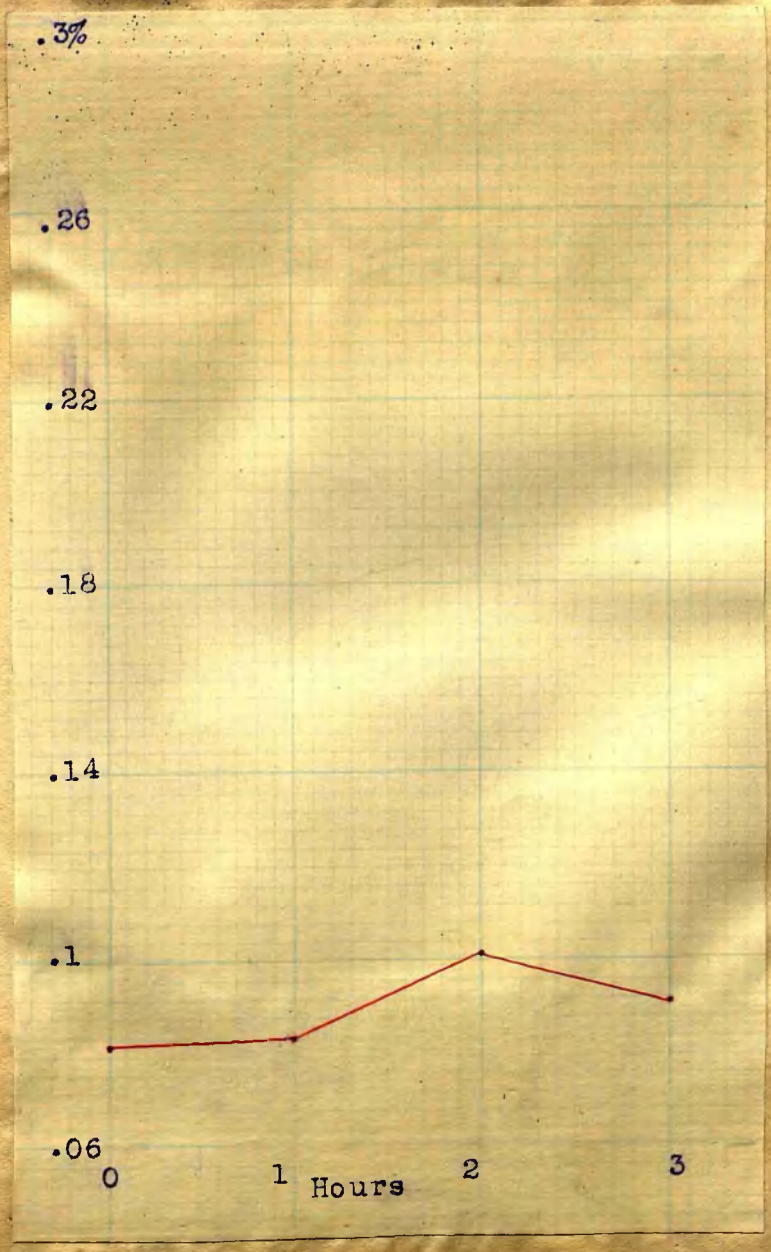

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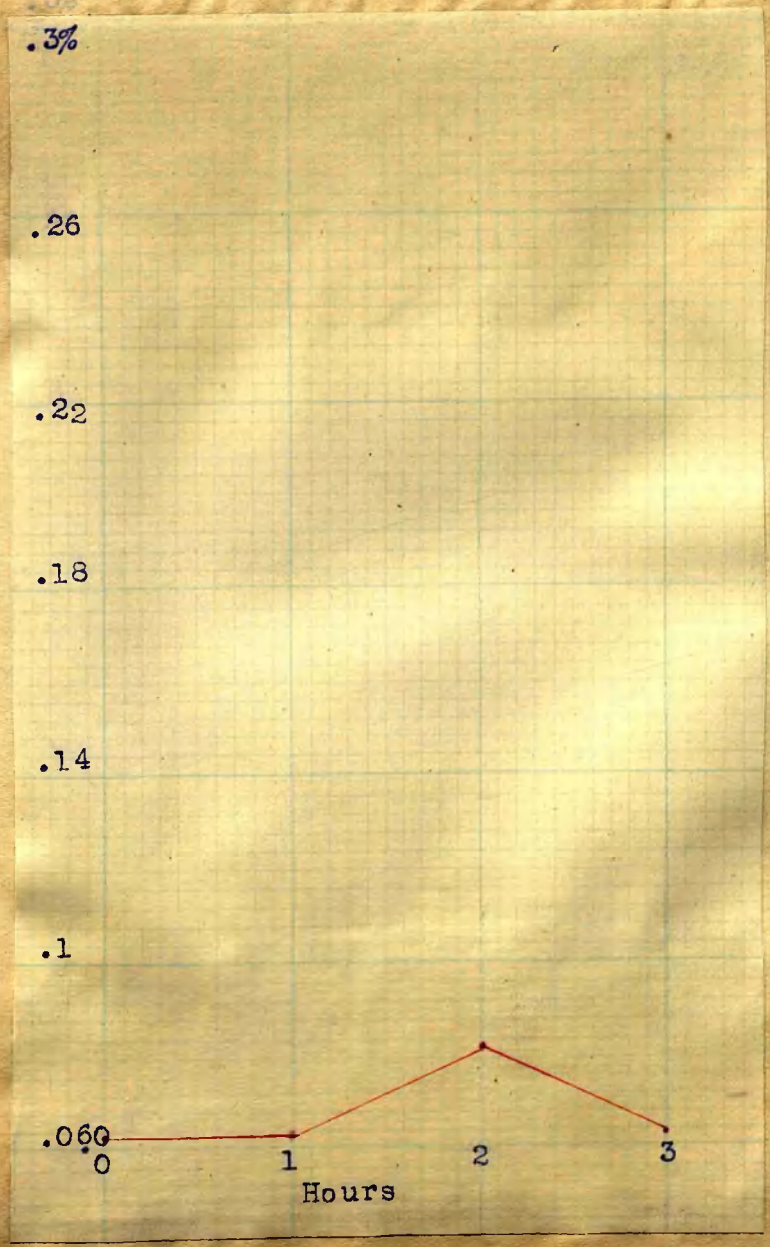

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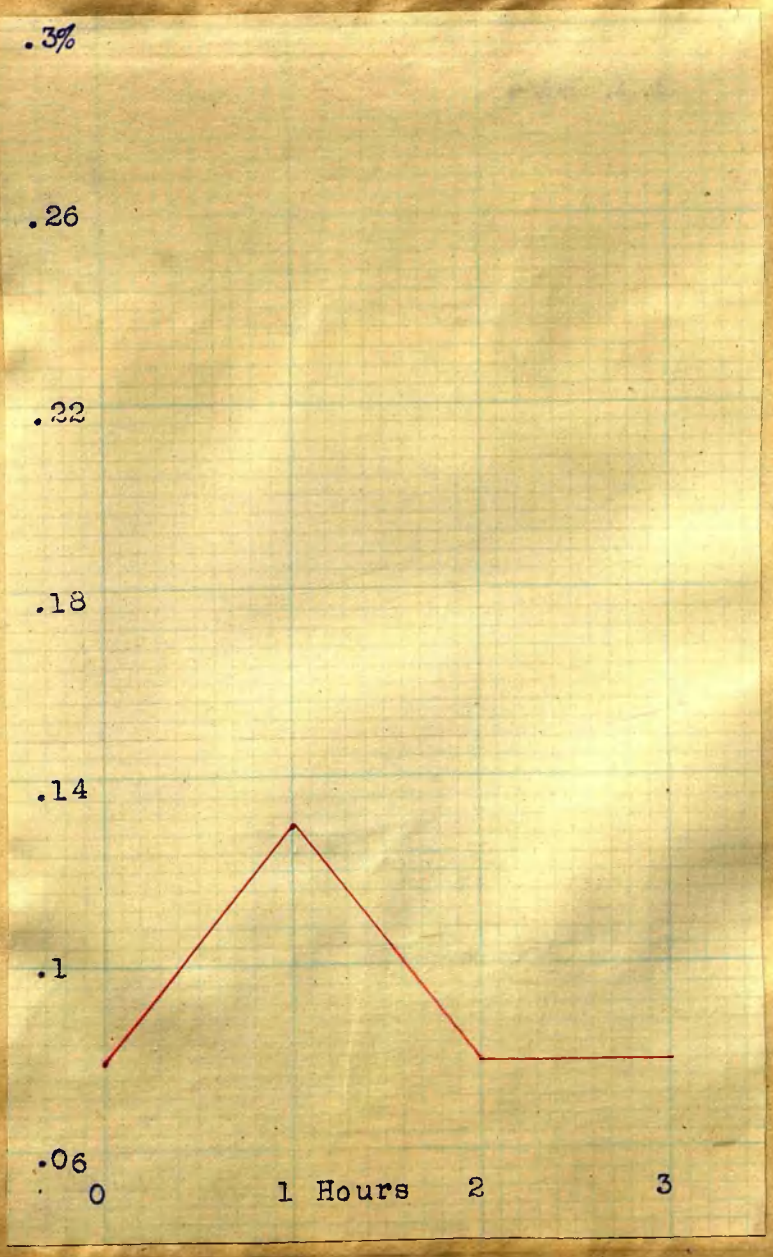

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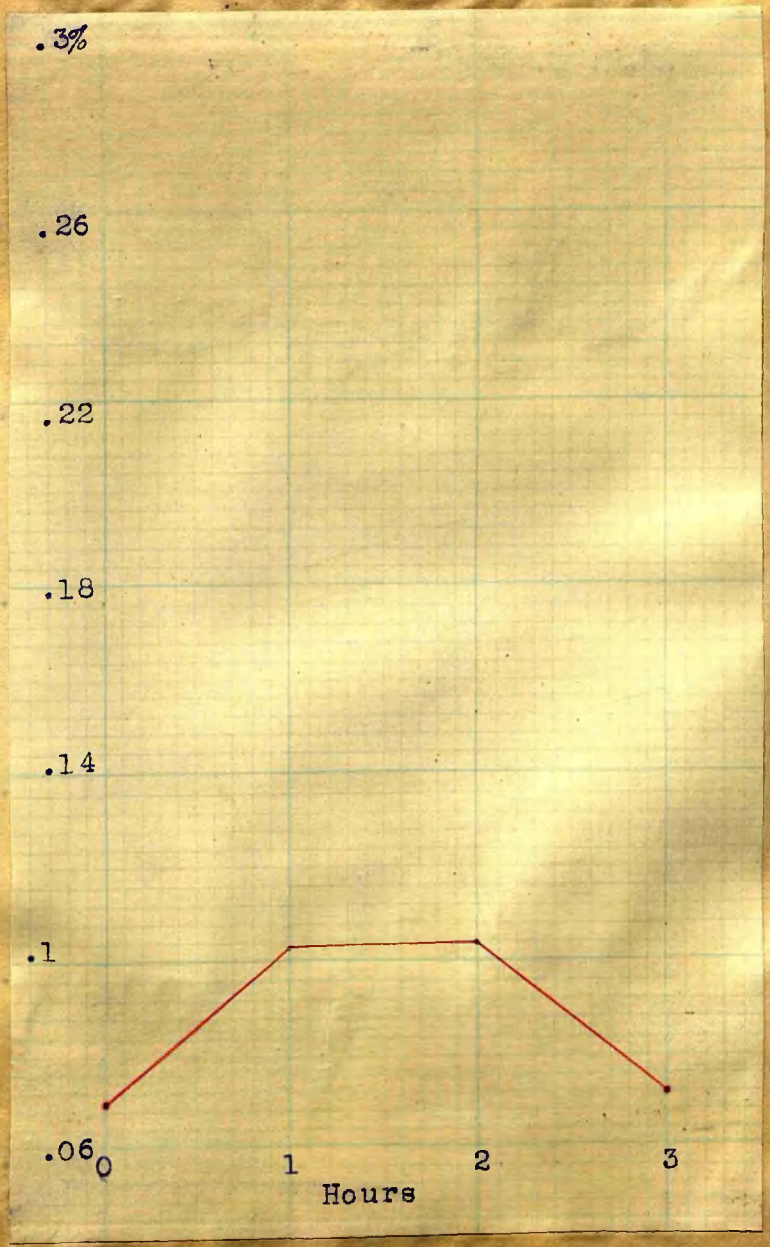

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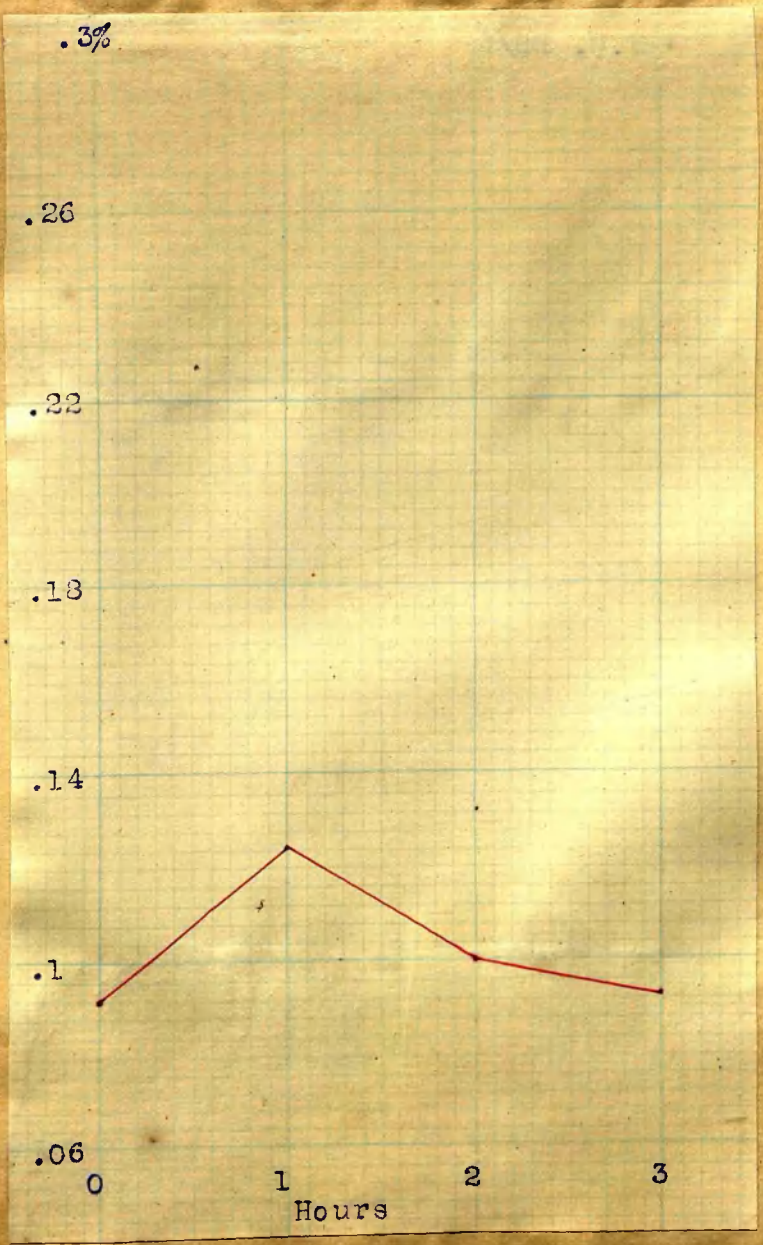

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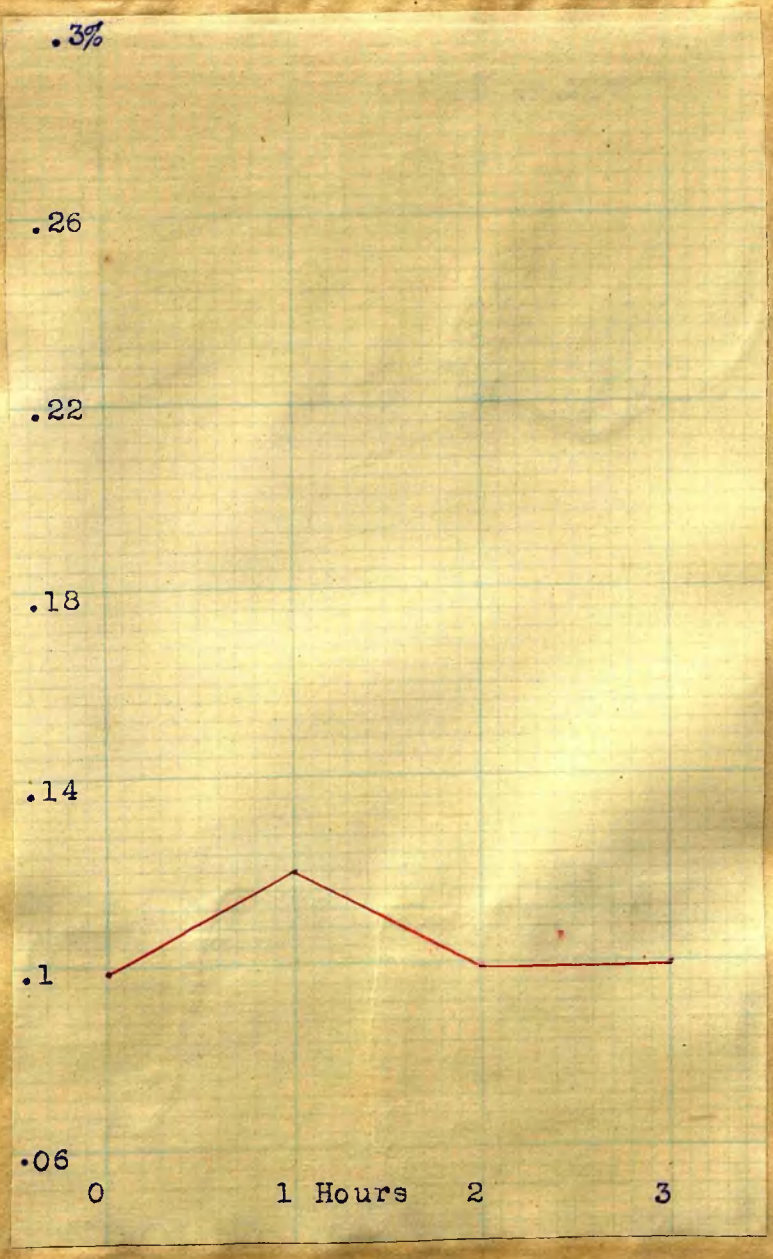

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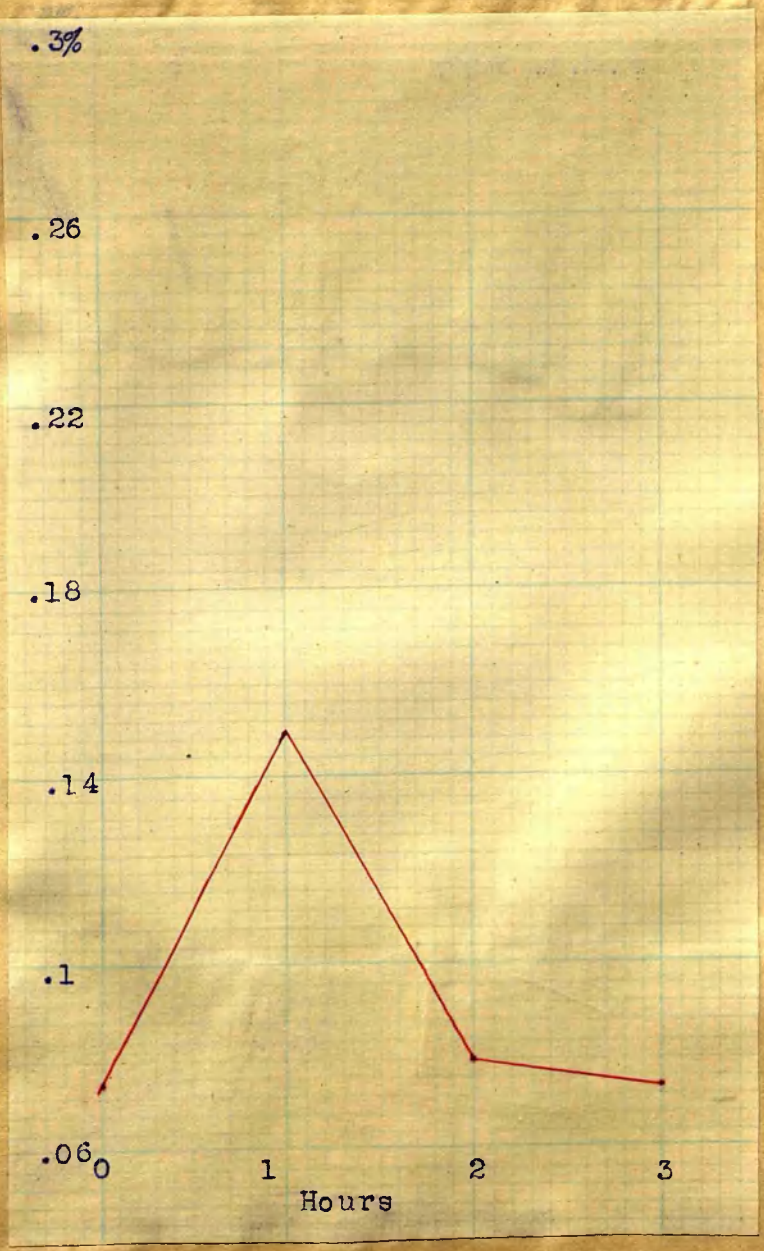

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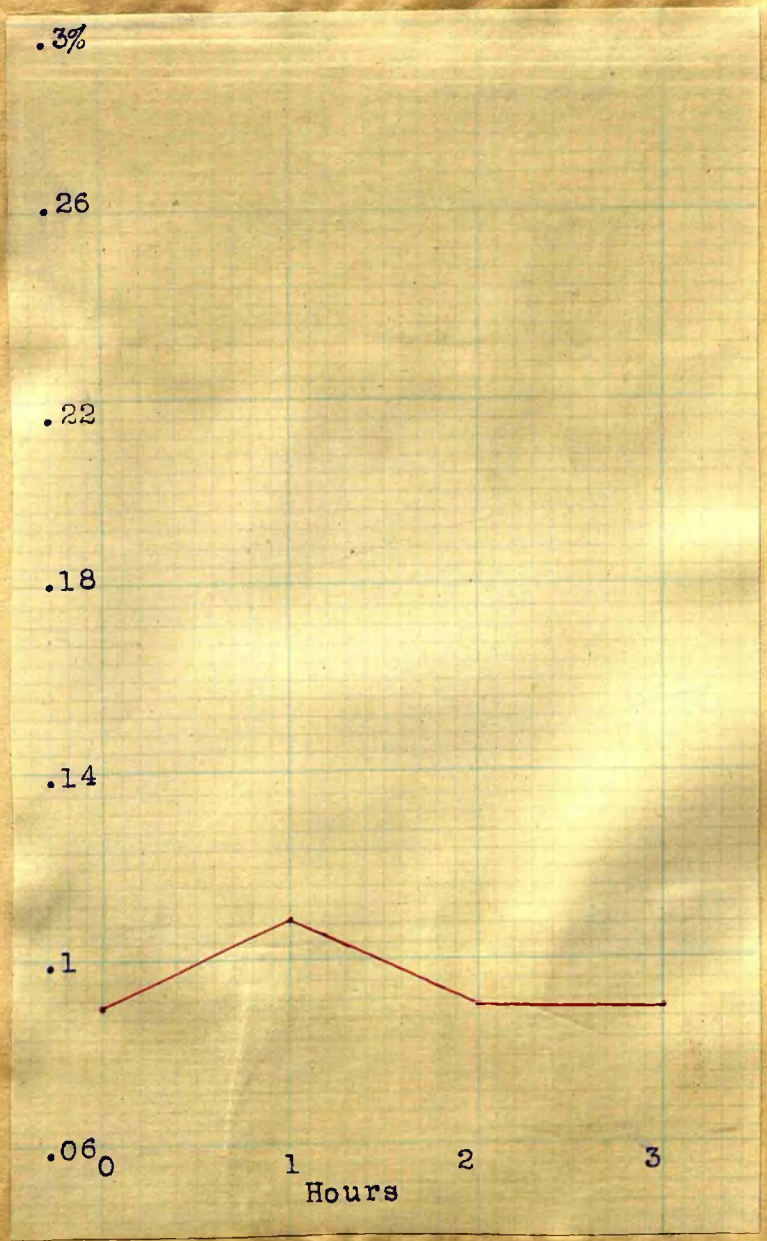


CHART NO.BS/10 J.E.R.

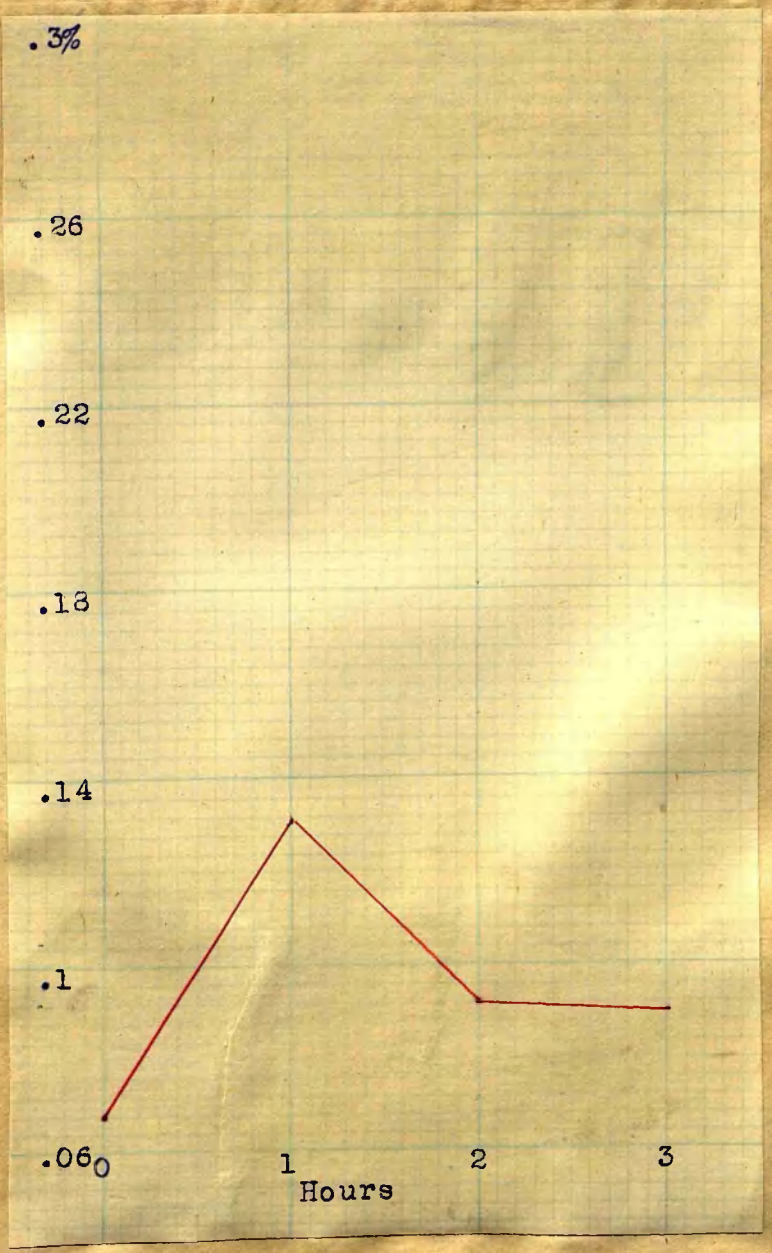
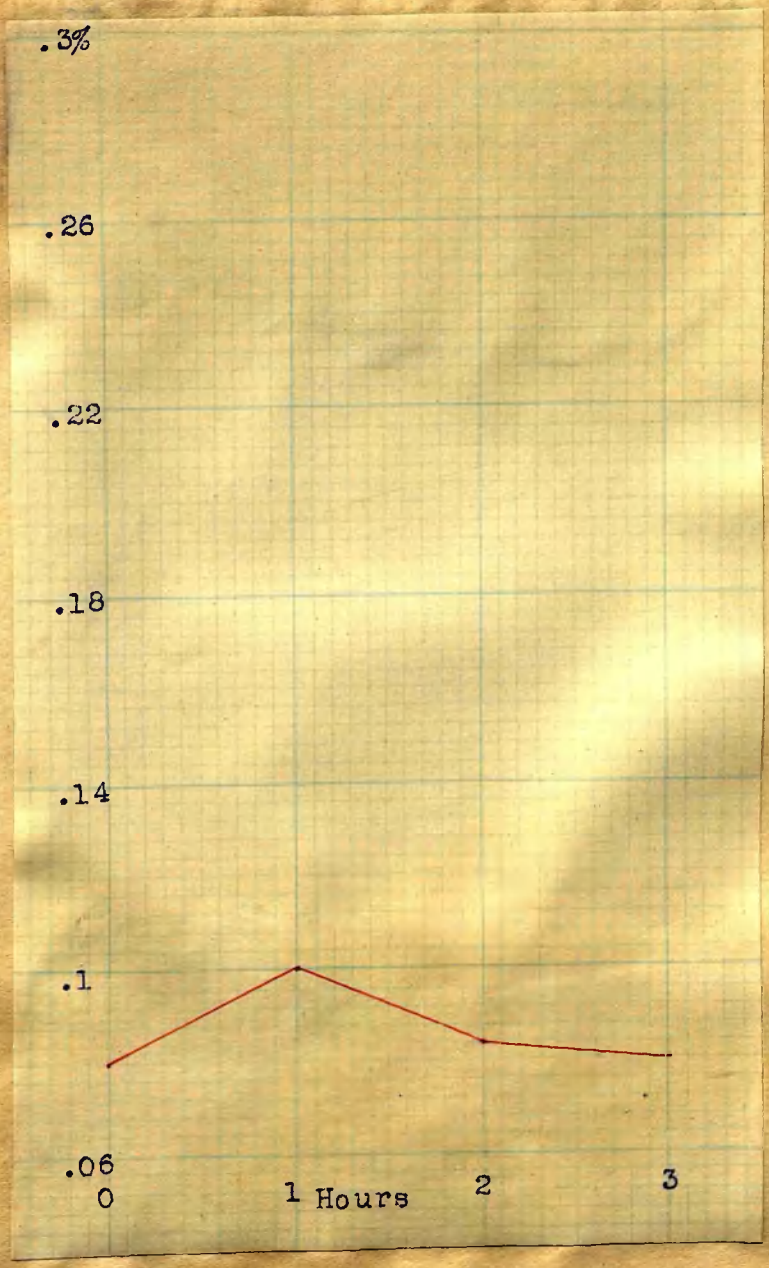


CHART NO.BS/11 M.A.M.



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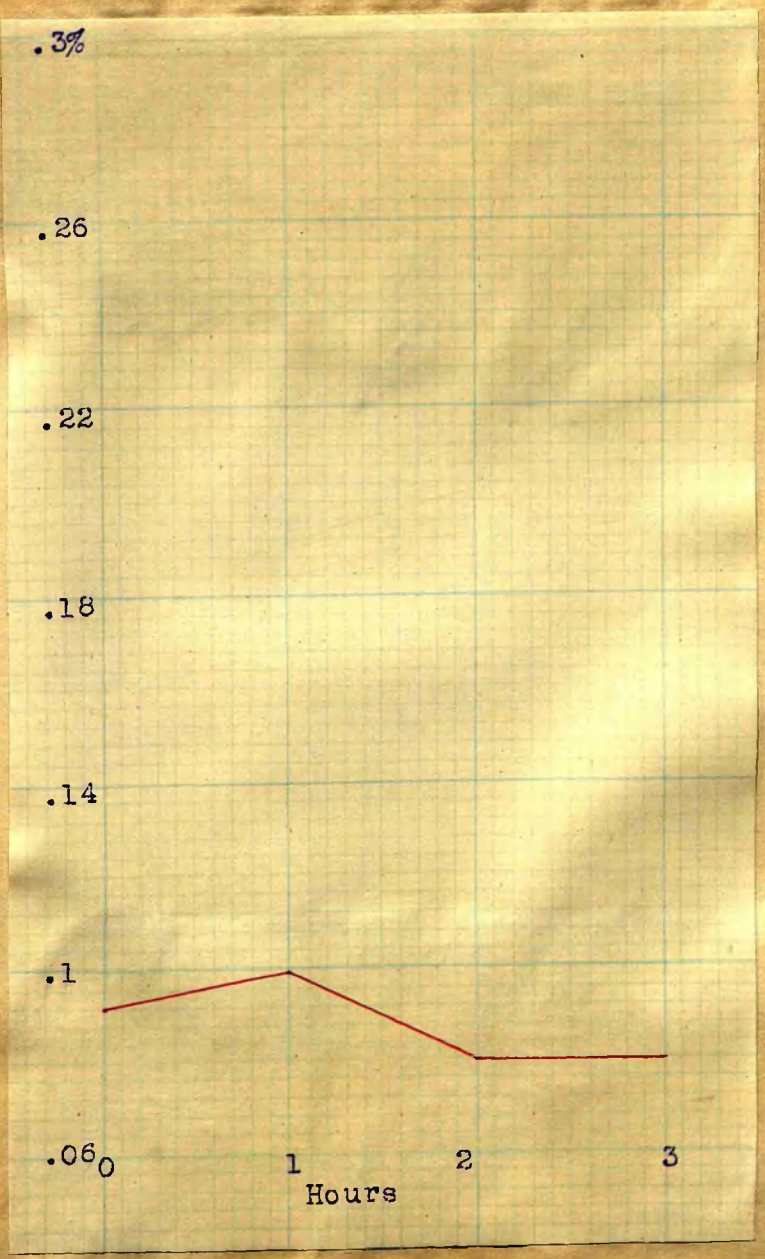


CHART NO.BS/14 B.R.D.

CHART NO.BS/13 A.B.E.

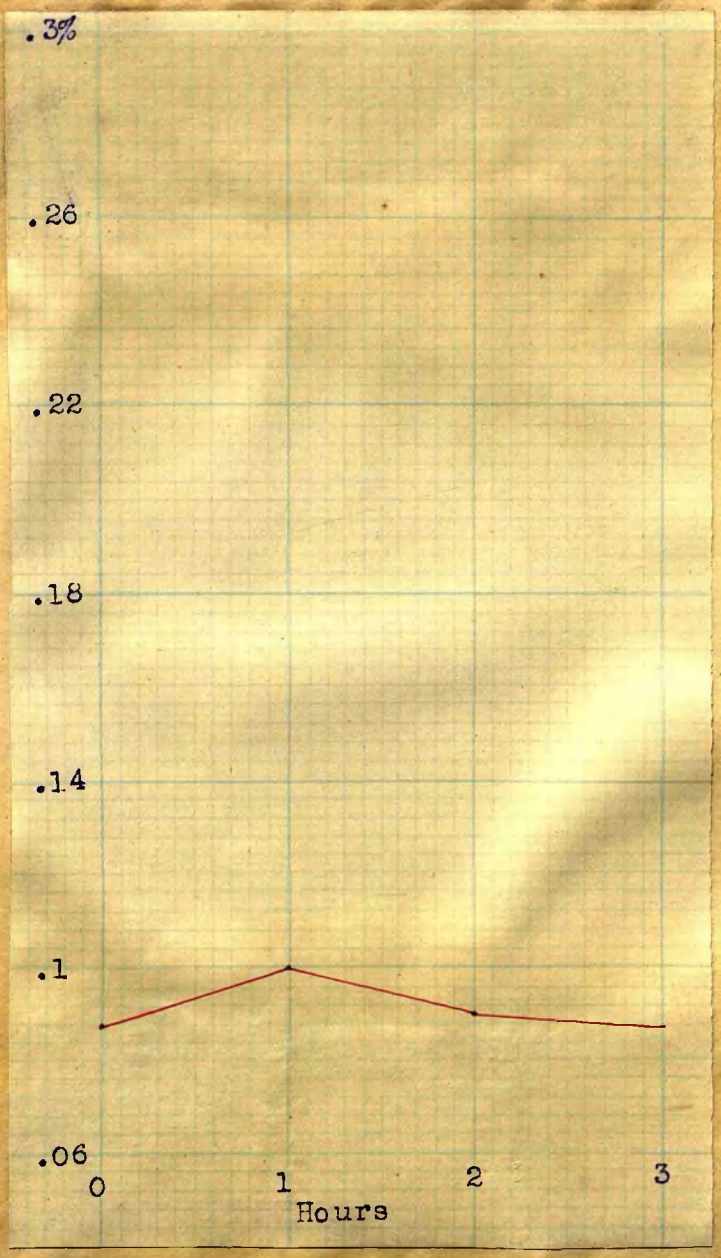


CHART NO.BS/14 E.M.D.

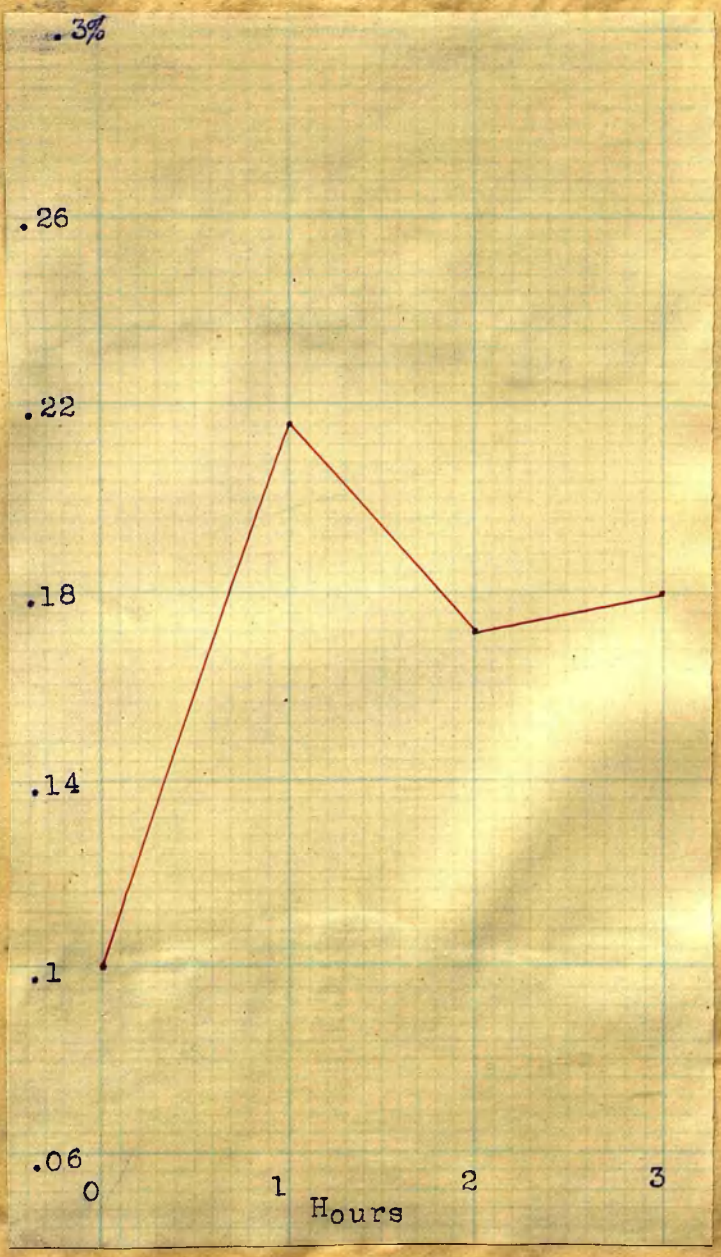


CHART NO.BS/15 K.B.

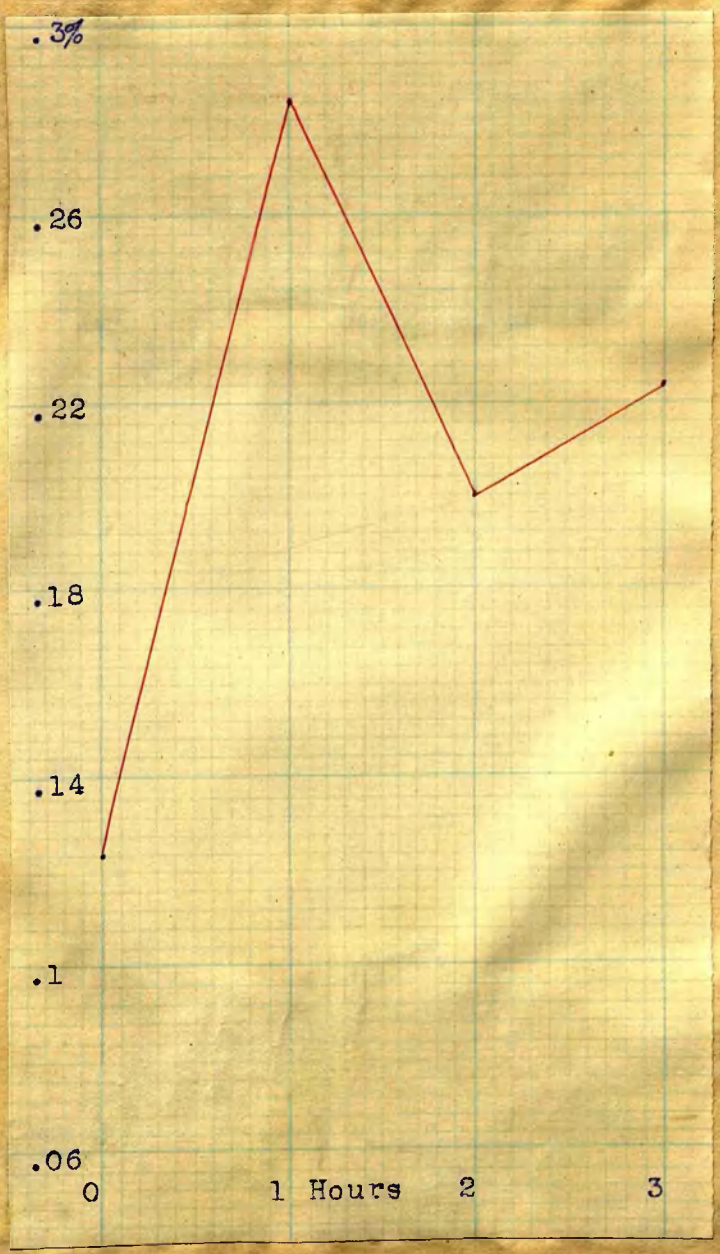


CHART NO.BS/16 C.M.N.

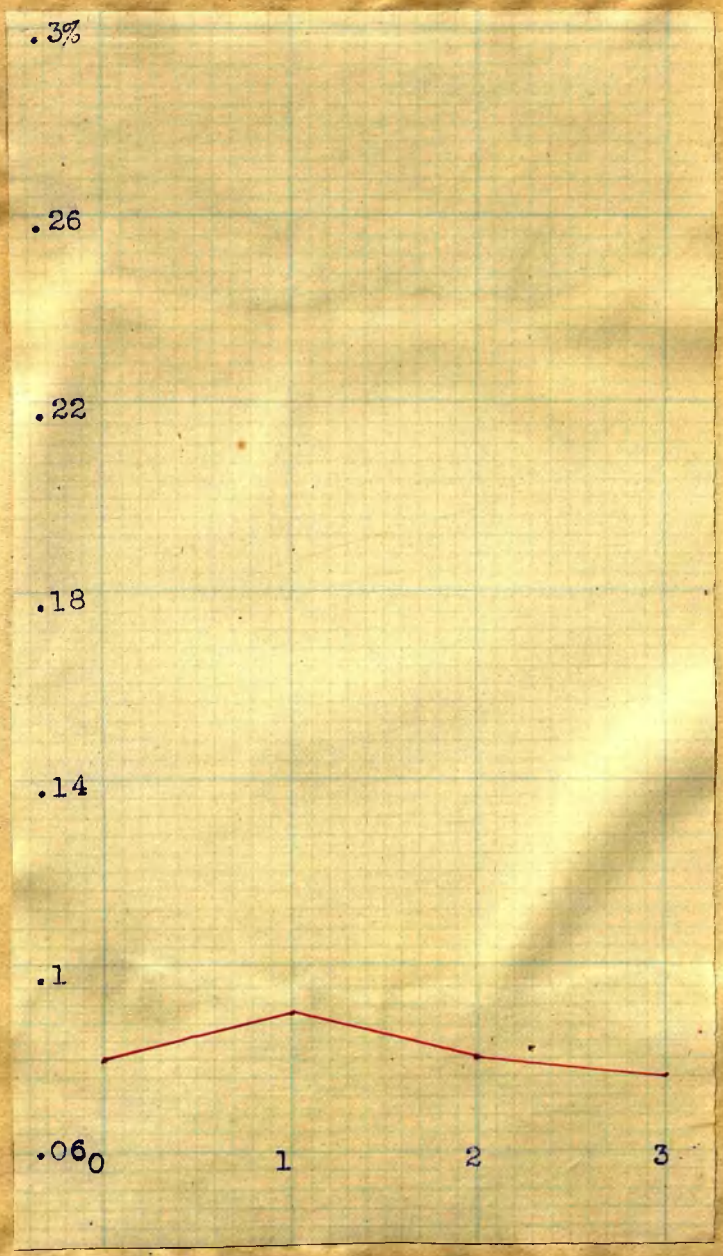
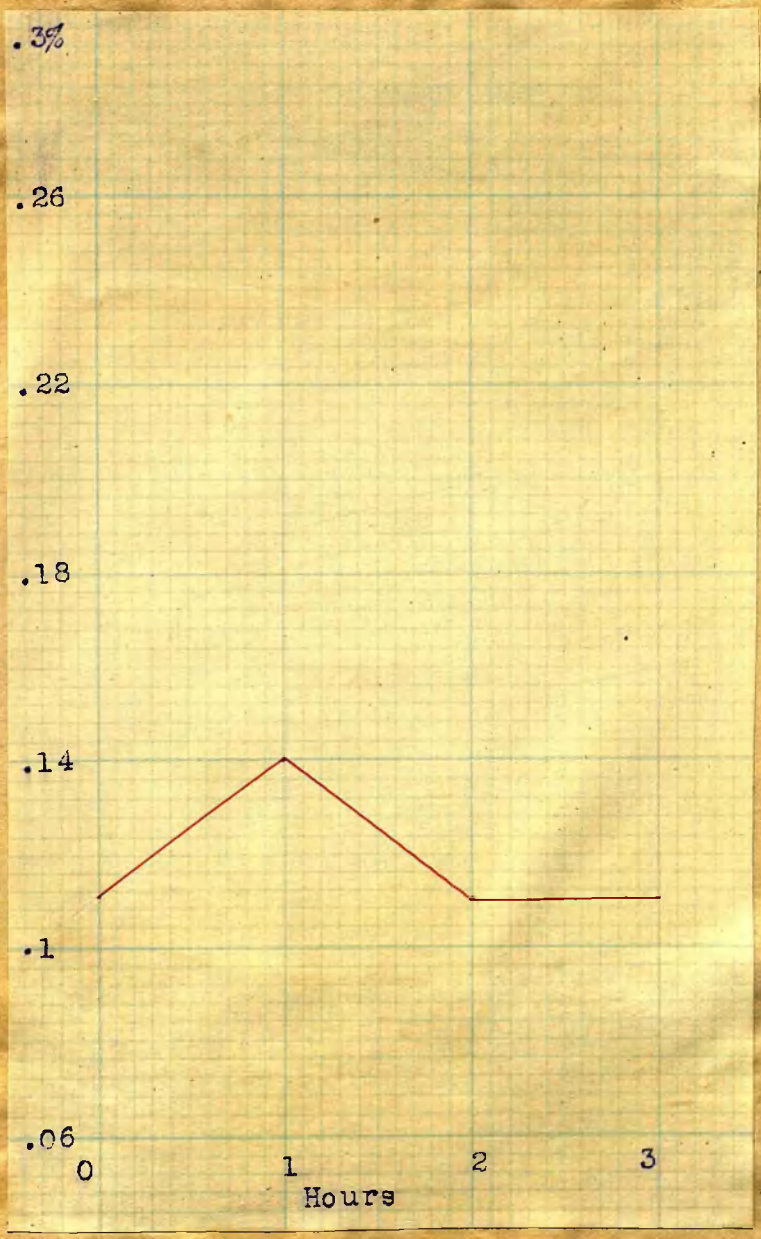


CHART NO.BS/17 C.M.M.



Dr MAW'S
(SMALL)

CLINICAL CHART.

CHART NO. C/1

Name D. B.

Sex MALE

Age 20 Occupation

Disease Dementia Praecox

Complications

NOTES OF CASE.

Case Book No

DATE	31/8/26	1/9/26	2	3	4	5	6	7	8	9	10	11	12	13	14	15						DATE
DAY OF DISEASE																						DAY OF DISEASE
F° / C°	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	
107°																						
106°																						
105°																						
104°																						
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102°																						
101°																						
100°																						
99°																						
98°		98.4°																				
97°																						
96°																						
PULSE M	68	76	74	64	70	72	74	74	54	60	50	60	60	62	54	58						PULSE M
PULSE E	77	68	70	70	74	68	64	63	58	76	58	58	56	60	74							PULSE E
RESPN M																						RESPN M
RESPN E																						RESPN E
B.O.																						B.O.
AMT OF URINE																						AMT OF URINE
SP GR.																						SP GR.
ALBUMEN																						ALBUMEN
SUGAR																						SUGAR
REACTN																						REACTN

Entered at Stationers' Hall.

S. Maw Son & Sons, Ltd, London.

DR MAW'S
(SMALL)

CLINICAL CHART.

CHART NO. C/2

Name A. F.

Sex MALE

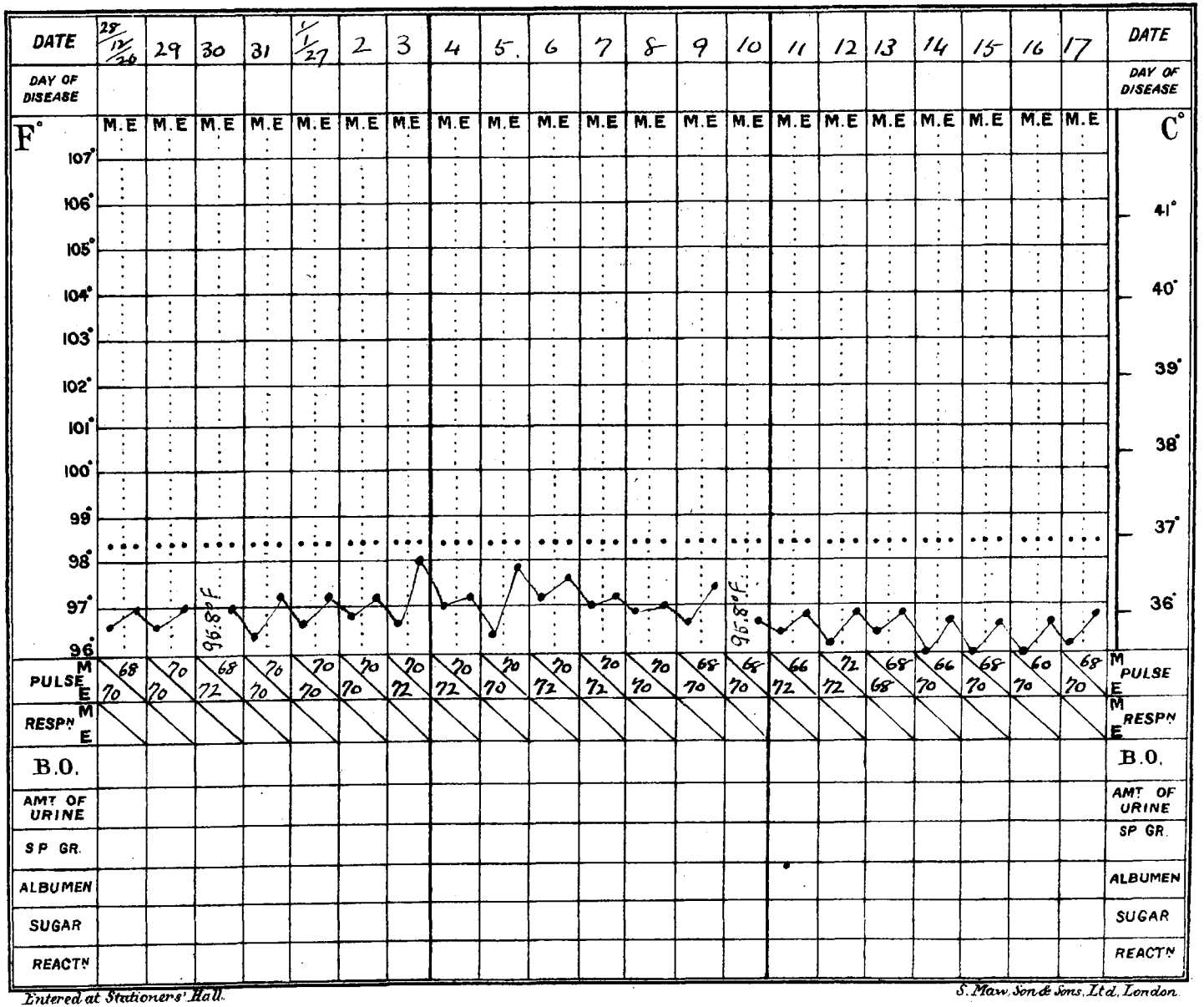
Age 18 Occupation

Disease Dementia Praecox

Complications

NOTES OF CASE.

Case Book No



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S. Maw, Son & Sons, Ltd., London.

DR MAW'S
(SMALL)
CHART NO. C/3a

CLINICAL CHART.

Name J. M.

Sex MALE

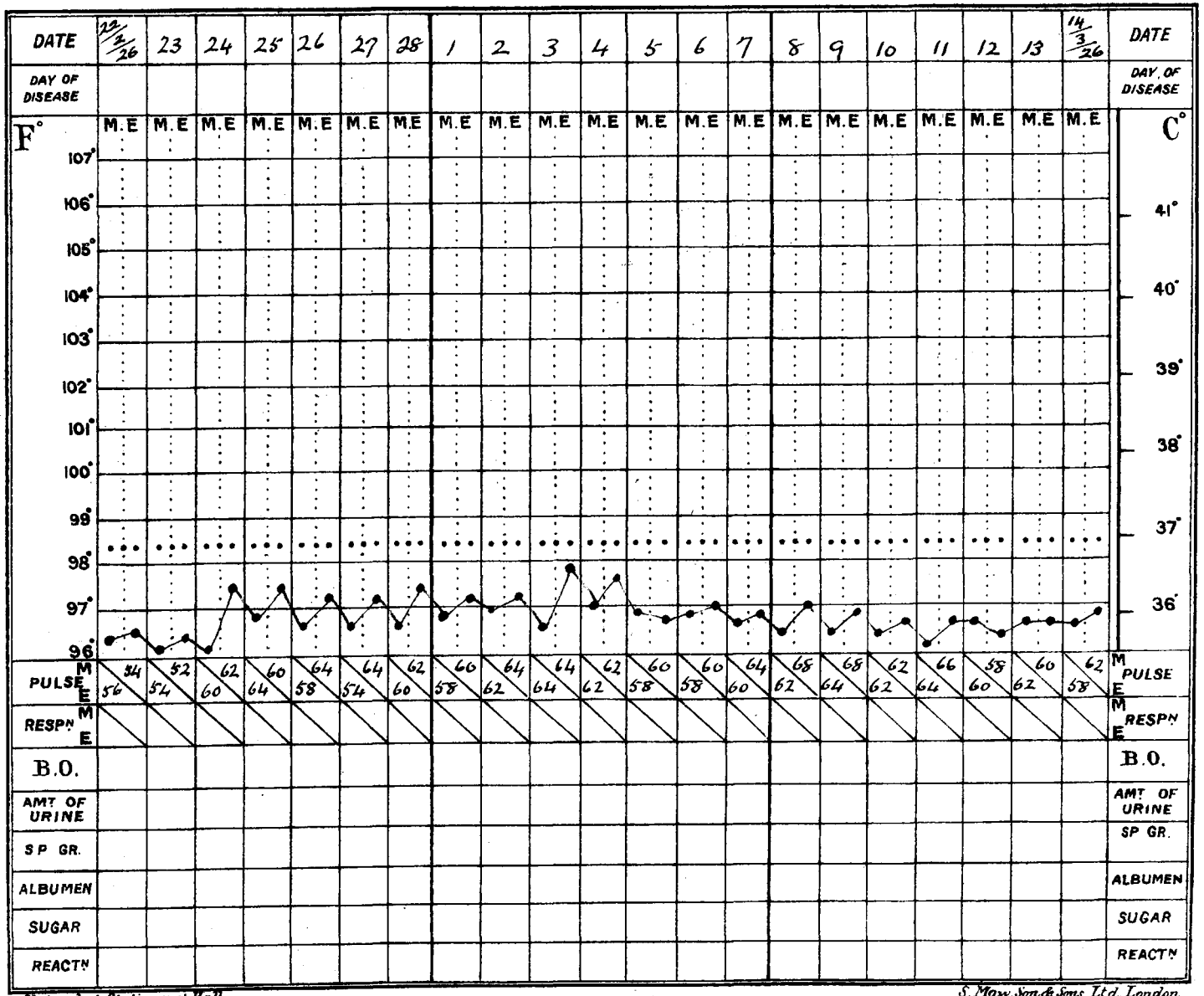
Age / 33 Occupation

Disease Dementia Praecox

Complications

NOTES OF CASE.

Case Book No.



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DR MAW'S
(SMALL)

CLINICAL CHART.

CHART NO. C/4

Name M. f.

Male

Sex

Age 31 Occupation

Disease Dementia Praecox.

Complications

NOTES OF CASE.

Case Book No

DATE	23/2/27	24	25	26	27	28	1/3/27	2	3	4											DATE
DAY OF DISEASE																					DAY OF DISEASE
F° / C°	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	C°
107°																					
106°																					41°
105°																					
104°																					40°
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102°																					39°
101°																					
100°																					38°
99°																					
98°																					37°
97°																					
96°																					36°
PULSE M	78	76	72	72	74	74	74	74	74	74											M PULSE
PULSE E	78	74	72	72	74	74	74	74	74												E
RESPN M																					M RESPN
RESPN E																					E
B.O.																					B.O.
AMT OF URINE																					AMT OF URINE
SP GR.																					SP GR
ALBUMEN																					ALBUMEN
SUGAR																					SUGAR
REACTN																					REACTN

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S. Maw Son & Sons Ltd. London.

DR MAW'S
(SMALL)

CLINICAL CHART.

CHART NO. C/5

Name F.C.

Sex FEMALE

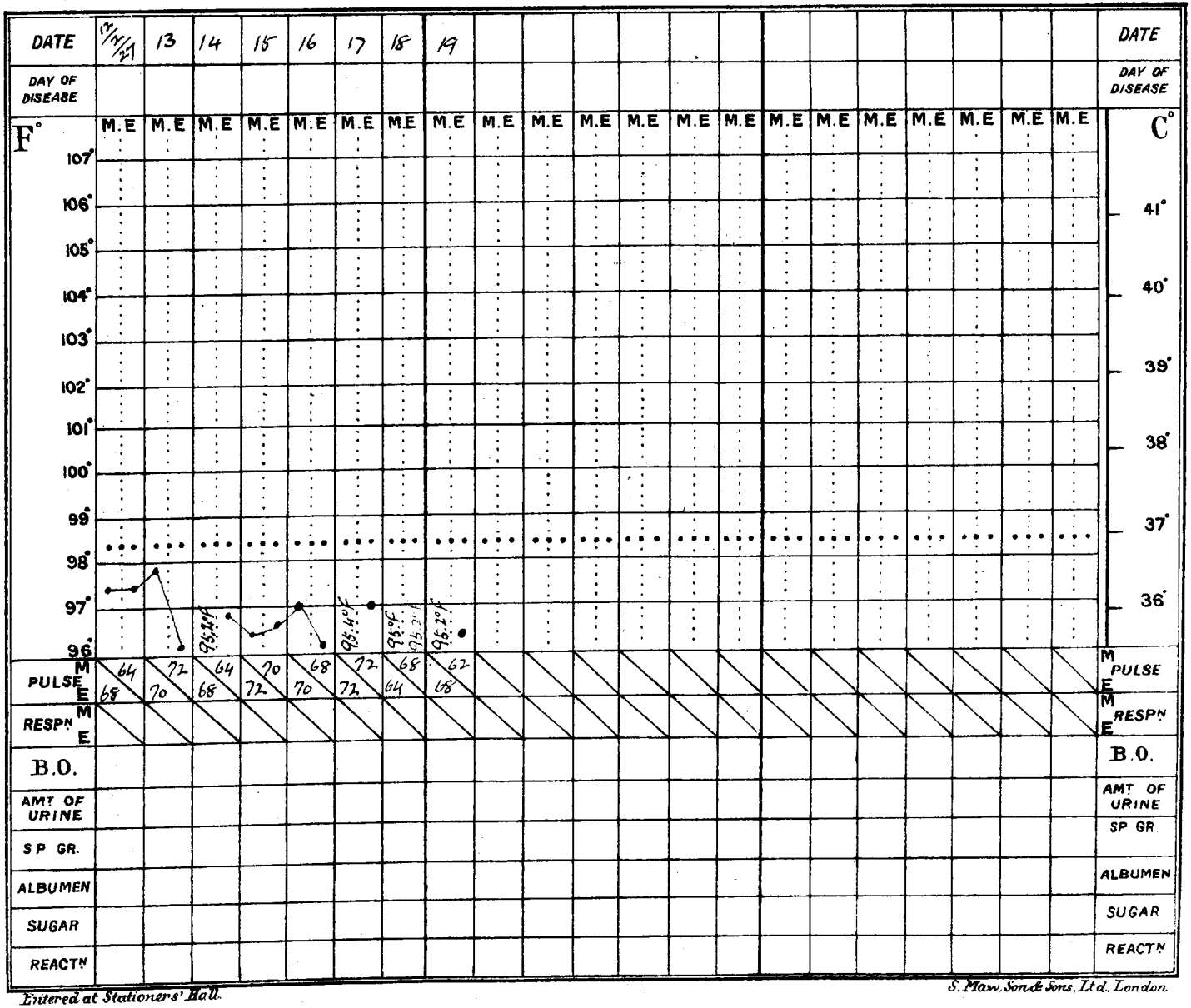
Age 26 Occupation

Disease Dementia Praecox

Complications

NOTES OF CASE.

Case Book No



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DR MAW'S
(SMALL)

CLINICAL CHART. CHART NO. C/6

Name W.M.A.

Sex FEMALE

Age 21 Occupation

Disease Dementia Praecox

Complications

NOTES OF CASE.

Case Book No

DATE	12/2/27	13	14	15	16	17	18	19													DATE
DAY OF DISEASE																					DAY OF DISEASE
F° / C°	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	C°
107°																					
106°																					41°
105°																					
104°																					40°
103°																					
102°																					39°
101°																					
100°																					38°
99°																					
98°																					37°
97°	96.4° 96.4°	96.4° 96.4°		95°			96.4°	96.2° 95.4°													
96°																					36°
PULSE M	66	74	76	70	86	84	80	74													PULSE M
PULSE E	70	72	72	72	82	80	76	78													PULSE E
RESPN M																					RESPN M
RESPN E																					RESPN E
B.O.																					B.O.
AMT OF URINE																					AMT OF URINE
SP GR.																					SP GR.
ALBUMEN																					ALBUMEN
SUGAR																					SUGAR
REACTN																					REACTN

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S. Maw, Son & Sons, Ltd., London.

DR MAW'S
(SMALL)

CLINICAL CHART.

CHART NO. C/ 7

Name J.M.A.

Age _____ Occupation _____

Sex MALE

Disease Dementia Praecox

Complications _____

NOTES OF CASE.

Case Book No _____

DATE	31/10/24	1/11/24	2	3	4	5	6	7	8	9	10	11	12	13								DATE
DAY OF DISEASE																						DAY OF DISEASE
F° / C°	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	C°
107°																						
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102°																						39°
101°																						
100°																						38°
99°																						
98°																						37°
97°																						
96°																						36°
PULSE M / E	82 / 88	84 / 84	84 / 82	84 / 86	82 / 82	82 / 82	78 / 84	74 / 78	80 / 78	66 / 78	72 / 66	80 / 78	78 / 78	80 / 80								M / E PULSE
RESPN M / E																						M / E RESPN
B.O.																						B.O.
AMT OF URINE																						AMT OF URINE
SP GR.																						SP GR.
ALBUMEN																						ALBUMEN
SUGAR																						SUGAR
REACTN																						REACTN

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DR MAW'S
(SMALL)

CLINICAL CHART. CHART NO. C/8

Name K.C.

Sex Male

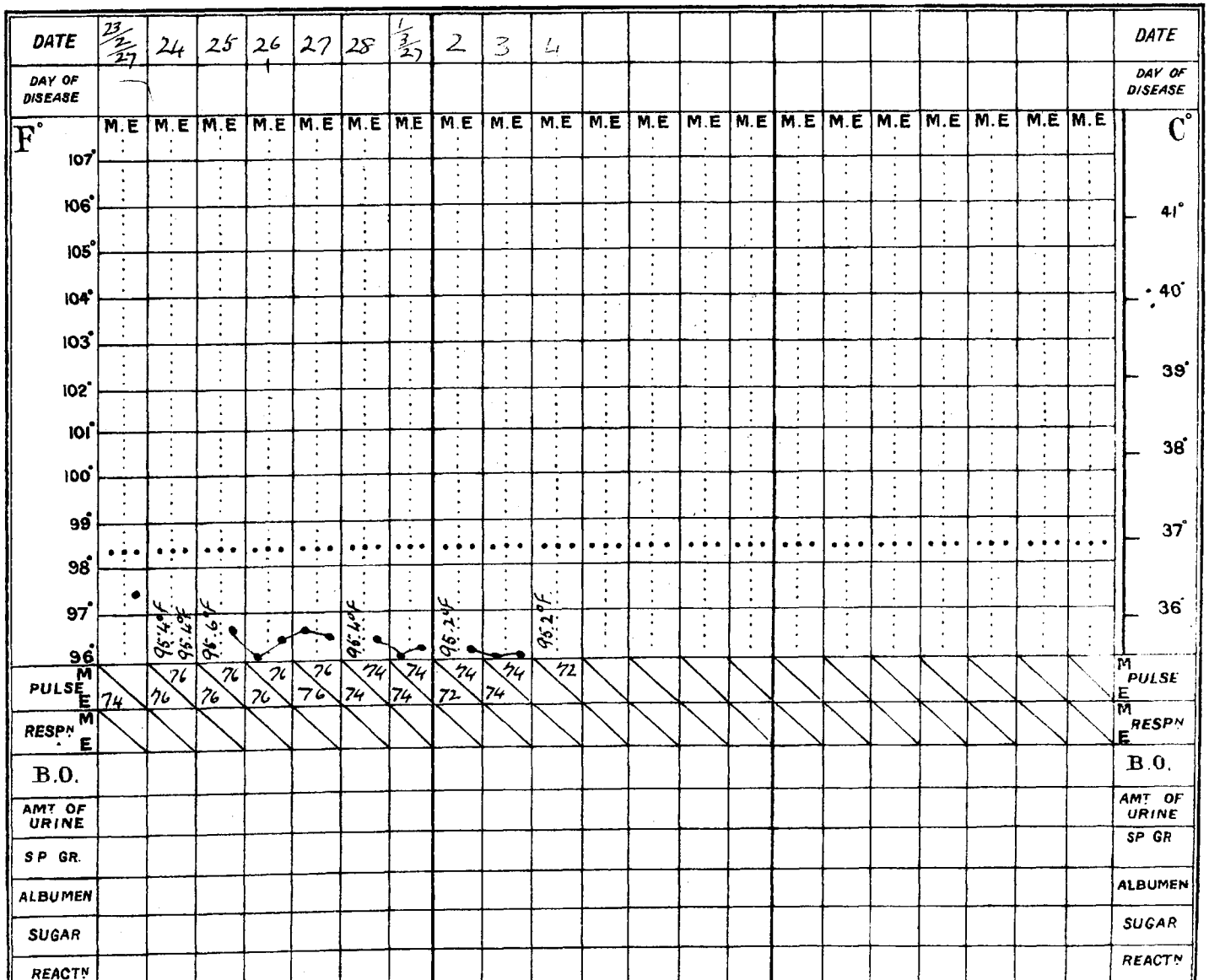
Age 25 Occupation

Disease Dementia Praecox

Complications

NOTES OF CASE.

Case Book No



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Dr MAW'S
(SMALL)

CLINICAL CHART.

CHART NO. C/9

Name J.E.R.

Sex MALE

Age

Occupation

Disease Dementia Praecox

Complications

NOTES OF CASE.

Case Book No.

DATE	19/1/27	20	21	22	23	24	25	26	27	28	29	30	31	1/2/27	2	3	4	5	6	7	8	DATE
DAY OF DISEASE																						DAY OF DISEASE
F° / C°	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	
107° / 41°																						
106°																						
105° / 40°																						
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100°																						
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97° / 36°																						
96°																						
PULSE M	54	54	64	76	66	60	66	68	64	64	68	68	60	58	56	54	56	62	60	60	56	PULSE M
PULSE E	60	62	66	74	70	72	70	68	68	68	64	62	62	60	60	60	60	64	64	62	62	PULSE E
RESPN M / E																						RESPN M / E
B.O.																						B.O.
AMT OF URINE																						AMT OF URINE
SP GR.																						SP GR.
ALBUMEN																						ALBUMEN
SUGAR																						SUGAR
REACTN																						REACTN

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Name M.A.M.

Sex FEMALE

NOTES OF CASE.

Case Book No

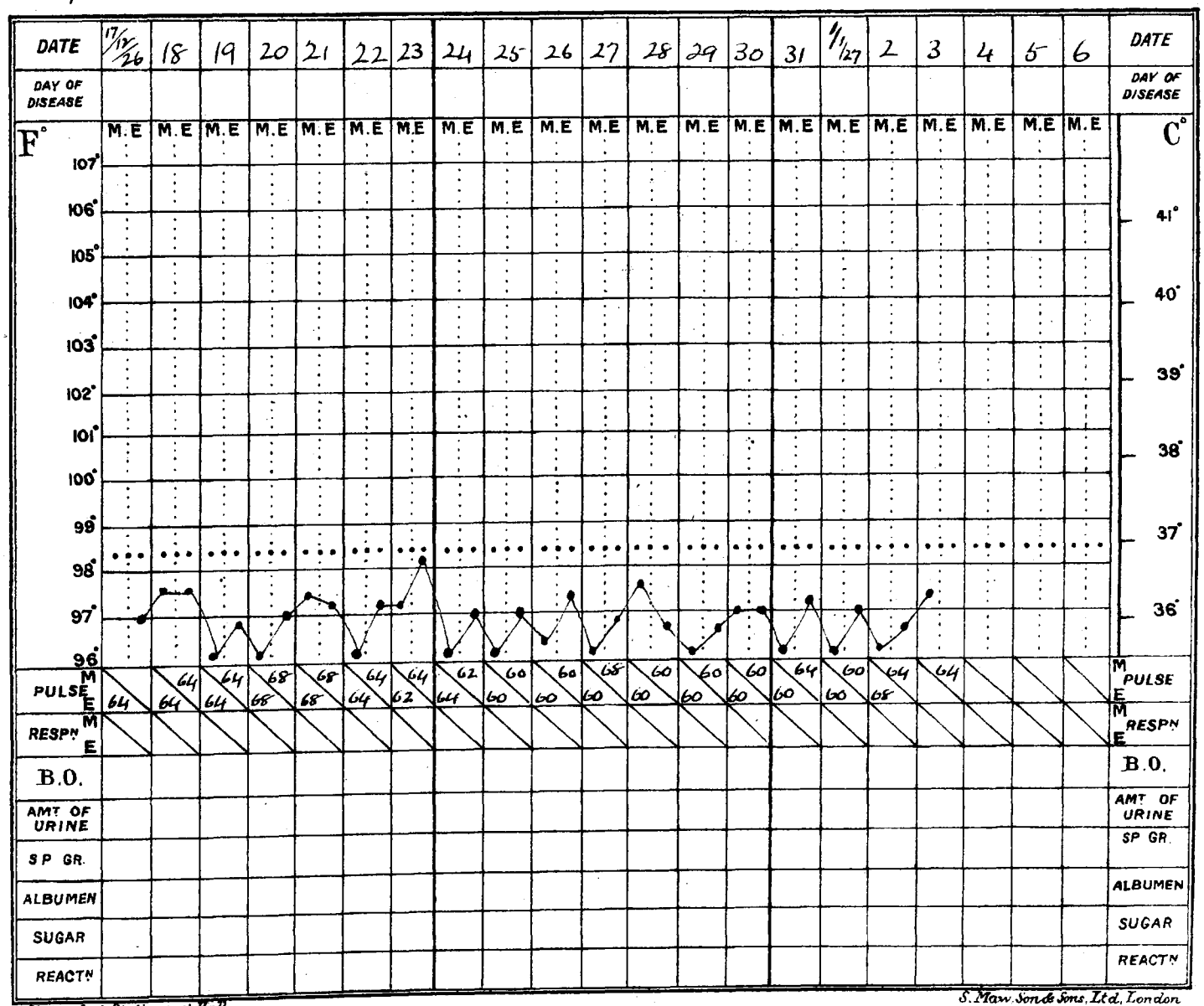
DR MAW'S
(SMALL)

CLINICAL CHART. CHART NO. C/10

Age 27 Occupation

Disease Dementia Praecox

Complications



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DR MAW'S
(SMALL)

CLINICAL CHART.

CHART NO. C/11

Name K. M. R.

Sex FEMALE

Age _____ Occupation _____

Disease Dementia Praecox

Complications _____

NOTES OF CASE.

Case Book No. _____

DATE	11/2/27	12	13	14	15	16	17	18														DATE
DAY OF DISEASE																						DAY OF DISEASE
F°	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	C°
107°																						
106°																						41°
105°																						
104°																						40°
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102°																						39°
101°																						
100°																						38°
99°																						
98°																						37°
97°				95.6 F.																		
96°																						36°
PULSE M E	90	84 82	86 84	80 80	90 88	90 90	86 88	90 86														PULSE M E
RESPN M E																						RESPN M E
B.O.																						B.O.
AMT OF URINE																						AMT OF URINE
SP GR.																						SP GR.
ALBUMEN																						ALBUMEN
SUGAR																						SUGAR
REACTN																						REACTN

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Dr MAW'S
(SMALL)

CLINICAL CHART.

CHART NO. C/12

Name A.B. E.

Sex FEMALE

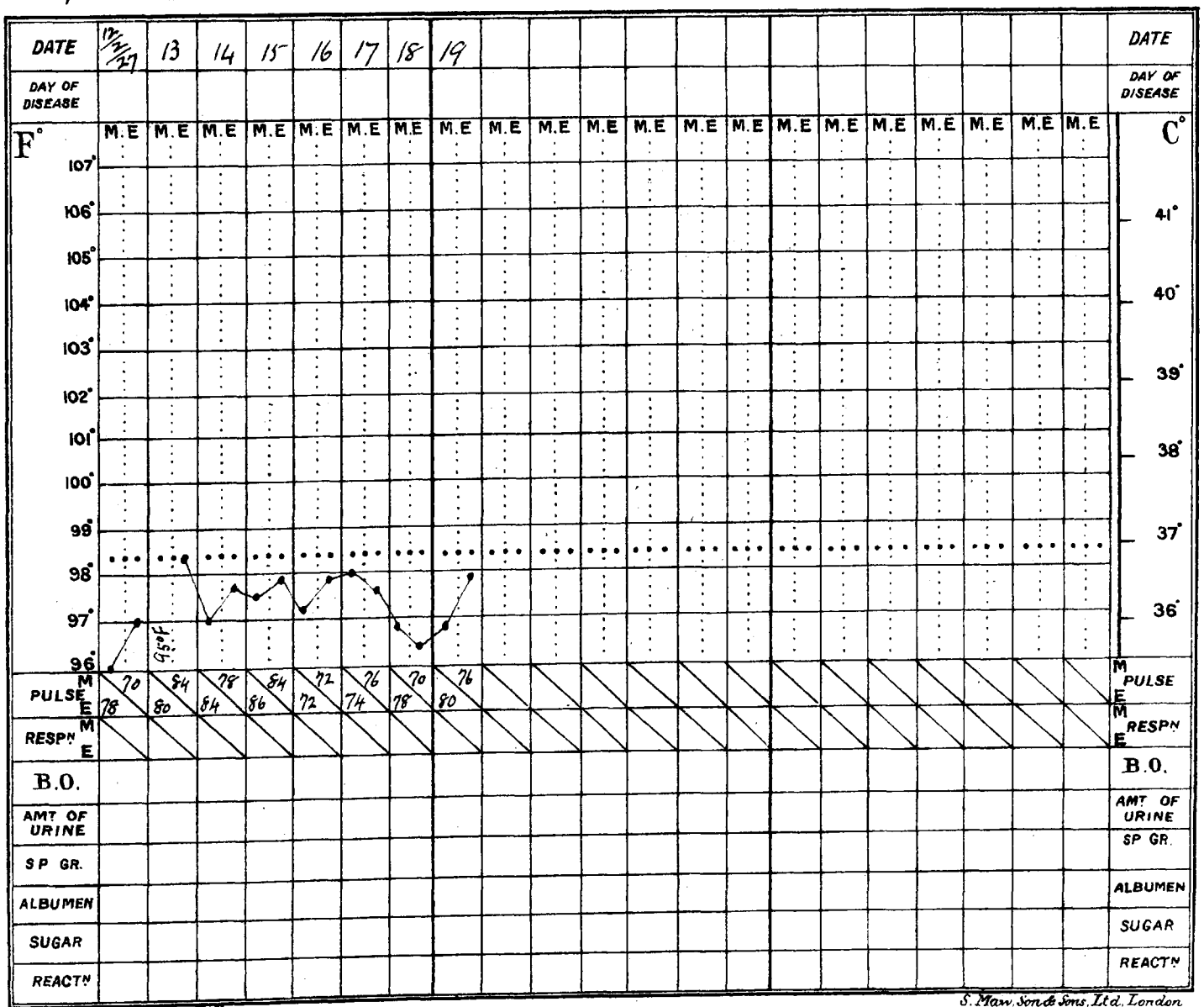
Age 25 Occupation

Disease Dementia Praecox

Complications

NOTES OF CASE.

Case Book No



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Dr MAW'S
(SMALL)

CLINICAL CHART.

CHART NO. C/13

Name C.M.N.

FEMALE

Sex

Age 22 Occupation

Disease

Complications

NOTES OF CASE.

Case Book No

DATE	19 1/27	20	21	22	23	24	25	26	27	28	29	30	31	1/2/27	2	3	4	5	6	7	8	DATE
DAY OF DISEASE																						DAY OF DISEASE
F° / C°	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	M.E	C°
107°																						41°
106°																						
105°																						40°
104°																						
103°																						39°
102°																						
101°																						38°
100°																						
99°																						37°
98°																						
97°																						36°
96°																						
PULSE M / E	80	74 / 82	78 / 120	96 / 94	96 / 80	80 / 84	80 / 84	84 / 84	86 / 88	90 / 90	88 / R	R / 98	108 / 108	98 / 102	96 / 90	84 / 96	82 / 88	92 / 90	86 / 90	90 / 94	94 / 80	PULSE M / E
RESPN M / E																						RESPN M / E
B.O.																						B.O.
AMT OF URINE																						AMT OF URINE
SP GR.																						SP GR.
ALBUMEN																						ALBUMEN
SUGAR																						SUGAR
REACTN																						REACTN

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DISEASE.

Dementia Praecox

Notes of Case.

Name C. I. L.

Age 27

Diet

Case Book No.

CHART No. C/14

Date of admission.

Result

Time.	M E	M E	M E	M E	M E	M E	M E	M E	M E	M E	M E	M E	M E	M E	M E	M E	M E	M E	M E	M E	M E	M E	M E	M E	M E	M E
Bowels.																										
Urine.																										
Day of Dis.																										
Pulse.	74	74	78	72	74	74	70	74	80	66	84	76	76	76	72	74	78	78	70	70	70	70	72	70	80	72
Resp.																										
Date.	22/3/22	23	24	25	26	27	28	29	30	31	1/4/22	2	3	4	5	6	7	8	9	10	11					

Temperature (Fahrenheit)

107° 106° 105° 104° 103° 102° 101° 100° 99° 98° 97°

Normal Temperat. of body.

Admitted at 10.50 p.m.

Temperature (Centigrade.)

42° 41° 40° 39° 38° 37° 36° 35°

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DISEASE.

Dementia Praecox

Notes of Case.

Name C. I. I.

Age 27

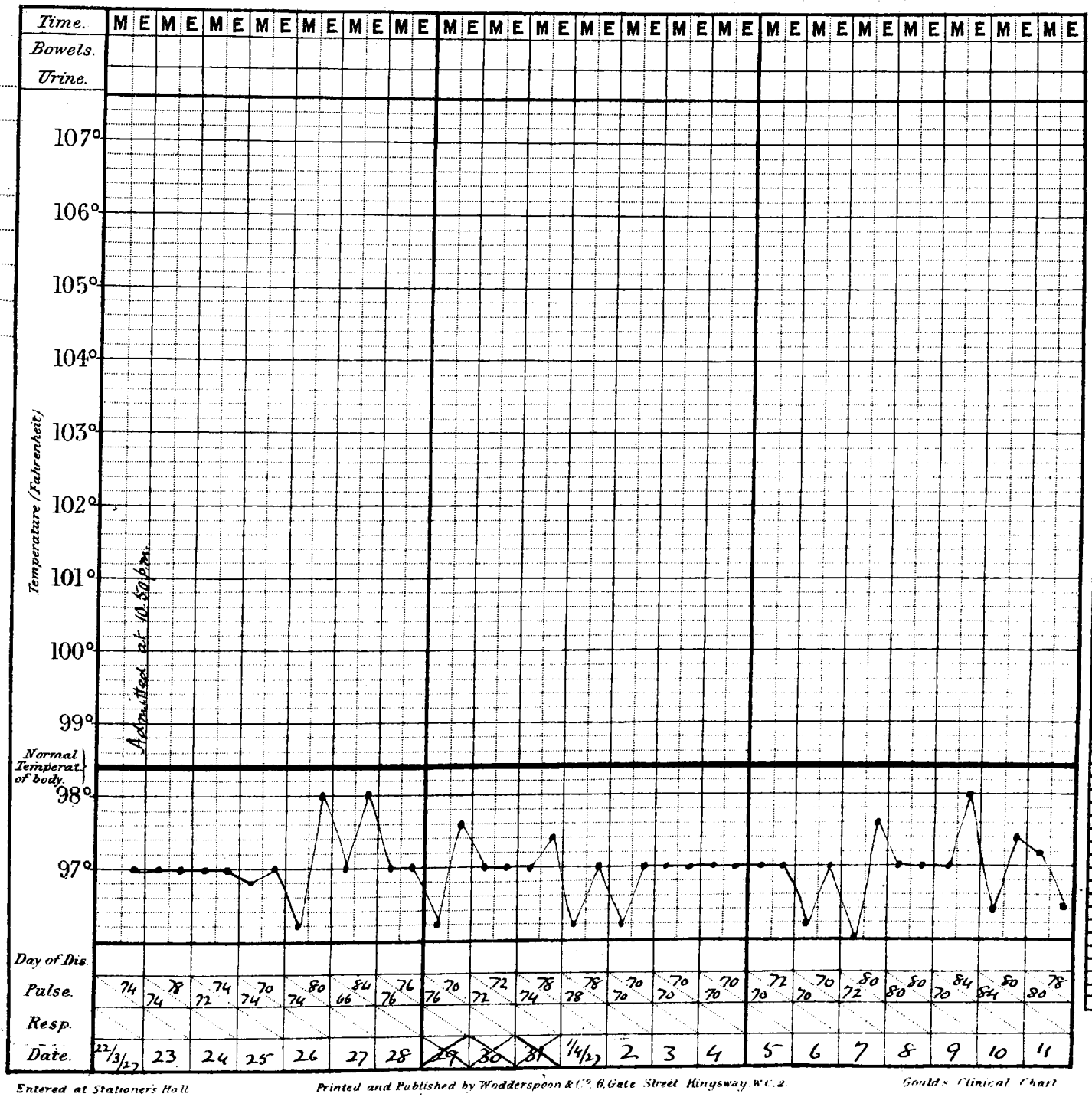
Diet

Case Book No.

CHART No. C/14

Date of admission

Result



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Gould's Clinical Chart