bacilli is at once diminished, the lactic acid bacilli being easily demonstrable in the dejecta for some time afterwards. We find, however, that with suitable doses of enriched cultures accustomed to live under anaërobic conditions, and administered in a specific acid medium, there is no difficulty in demonstrating the presence of the bacilli in the stool passed the following morning.

It is not an easy matter to recognize the various lactic acid bacilli in the faeces, and only when we adopted the acid "gastric" medium referred to did we find the procedure at all simplified. By this means, however, the recognition is neither difficult nor tardy, and the practitioner is assured of a practical demonstration of the object he aims at.

These lactic acid bacilli are not in their natural habitat when transferred to the colon, and it is curious that their life in the intestine is about the same as it is in artificial media—namely, about five to seven days. This seems to be the period when another dose is indicated. The fact suggests that we must not expect these bacilli to become acclimatized to the intestine easily, and must regard them rather as temporary interlopers, our object being to allow the normal flora to regain their sway as soon as the objectionable putrefactive anaërobic organisms are overcome.

Passage of Lactic Acid Ferments through the Alimentary Canal.

Tablets from the various preparations were taken by the mouth. When the organism appeared in the faeces the ingestion was stopped, and the faeces examined daily until the lactic acid ferment could no longer be isolated.

TABLE XI.

Period of Ingestion.	First Appearance in Faeces.	Disappearance from Faeces.
Tablet (1), Feb. 1st to 10th ...	No appearance	—
Tablet (6), Jan. 30th to Feb. 3rd ...	No appearance	—
Tablet (3), Jan. 30th to Feb. 1st. ...	February 1st	February 4th
Culture, Feb. 1st to 2nd ...	February 2nd	February 8th
Culture (6), Feb. 3rd to 4th ...	February 4th	February 10th

It only remains to make the deduction that even the best present commercial preparations are not sufficiently and regularly active for routine use, and that freshly prepared fluid cultures should be employed when lactic acid therapy is indicated. The activity and power of the organisms in producing acids cannot be taken as an index of their multiplication and inhibitory action upon other organisms, and it is probable that no one organism can be regarded as efficacious in every case. When an organism fails to produce the desired result, certain laboratory tests may indicate the selection of bacilli possessing other characteristics. It should also be borne in mind that the lactic acid therapy is only indicated when the putrefactive anaërobic organisms are present in the faeces in excess, and that without such a guide this form of medication may aggravate rather than ameliorate the intestinal conditions.

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¹ BRITISH MEDICAL JOURNAL, vol. i, 1904. ² Fournier, *Coombe's Intestinal Auto-intoxication*, p. 444, Rebman, London, 1909. ³ Crithari, *Comp. Rend. de Soc. Biologie*, 1908, p. 818. ⁴ Palier, *Boas's Archiv*, 1908, Bd. 14, p. 312.

MESSRS. HARVEY FROST, who are well known as the manufacturers of a very useful portable tyre vulcanizer, have issued a pamphlet, which they will present to persons interested, containing certain particulars of various motor tyres upon the market. No opinions are expressed upon their relative merits, but it contains some useful hints as to the management and repair of tyres. Specimens of all those mentioned can be seen at Messrs. Harvey Frost's, 27, Charing Cross Road, where they are not on sale, and therefore can be inspected and compared without any order being expected.

An Address ON MINING ACCIDENTS:

WITH
AN ACCOUNT OF THE USE OF OXYGEN IN A
COALPIT ACCIDENT.

DELIVERED TO THE STIRLING BRANCH OF THE BRITISH
MEDICAL ASSOCIATION

By JAMES ROBERTSON, M.B., C.M.,

CLACKMANNAN; PRESIDENT.

GENTLEMEN,—I accept it as an honour to have been asked to address you, and I hope that what I have singled out of my scrapbook may be of interest.

COMPLETE DISLOCATION OF KNEE-JOINT.

In the following case there are three points to which I desire to call particular attention:

1. The free mobility of the limb at the knee-joint. One of the classical signs of a dislocation is no movement where there ought to be movement; in dislocation of knee-joint there is increased mobility, and mobility in every direction.

2. The floating patella, which simulated a patella in a case of acute synovitis with effusion; the difference being that upon comparison with the other limb the patella was 3 in. higher.

3. Was the entire absence of pain due to the amount of crushing and local stunning of tissue and nerves from the violence of the wrench?

J. M., a drawer, aged 20, was brought home from his work injured on February 19th. He stated that a hutch containing a load of coal—total weight 15 cwt.—was proceeding down an incline when it left the rail. He went in front to replace it, and when he had done so it ran away, catching his foot between the hutch and a sleeper, the toe of his boot being caught by the sleeper, his heel by the hutch; the hutch, moving on, carried his foot to extreme flexion, when the hutch broke and tilted upon his leg. He became helpless and was removed home.

Condition on Examination.

The limb was shortened and the region of the knee-joint enlarged; there were several bruises between the knee and ankle on the posterior aspect of the leg; the limb was freely movable in any direction at the knee-joint; neither crepitus nor any other sound elicited; there was no pain. Posteriorly the entire articular surface of the femur was felt, the rounded condyles and the notch between them. Anteriorly the patella was freely movable in any direction, and could be pressed down upon the anterior aspect of the femur. The rectus femoris was raised from the femur, and could be grasped easily with the fingers upon displacing the patella; the entire articular surface of the tibia could be felt; the cup-shaped depressions, with the spinous processes; the crucial ligaments could be felt torn; no pulsation could be felt in the tibial arteries at the ankle-joint.

Treatment.

I administered chloroform and set the joint by grasping the ankle with my right hand, placing the femur near the knee on my left thigh, and combining extension with flexion, the joint replaced itself with a loud snap. I again examined, and found the parts normal so far as the bones were concerned, the patella gliding normally over the condylar surfaces, and the replaced joint moving normally and without pain. The limb was wrapped in wadding and a posterior splint applied.

On the day after the accident the patient complained of severe pain round the ankle, and described it like a rope tied tightly there. He had been restless all night. The knee-joint was greatly swollen, and the patella floating, owing to great effusion into the joint; there was no pain, except upon pressure. The foot was bluish and cold, and superficial sensation was lost; deep sensation was present, but feeble; several patches of skin on the leg were ecchymosed, and there were three small blebs, containing dark serum, in the popliteal space. These I pricked and dressed; the foot was rolled up in flannel, and a hot iron, also rolled in flannel, kept at it; a saline purge was given.

On the third day the swelling in the joint was greatly reduced, the bowels had moved, and he had had a good night, but complained of sharp shooting pains occasionally passing up the leg from the foot.

On the fourth day the knee was normal in size and looking well; the dressings were removed, and movement begun. Dry gangrene was starting in the toes; all sensation in the foot was lost, but there was hyperaesthesia round the ankle-joint. The gangrene gradually extended from the toes to the foot, until the patient was removed to the Victoria Hospital, Glasgow, for operation seven days after the accident—February 26th.

During the first four days' residence in hospital the patient became febrile, and began to show the characteristic chart of septicaemia. The calf of the leg began rapidly to swell, and became boggy. This was incised on March 1st, when pus escaped, and at the same time the gastrocnemius and soleus muscles protruded out of the wound, showing that they had been torn at the time of the accident. The septic condition was the result of absorption of poisonous products from the gangrenous foot being carried up to the injured muscles of the calf, the bruised tissue and blood effusion being a suitable medium for the resultant abscess, the general septicaemia following.

The limb was amputated at the lower third of the femur on March 4th. The patient made a slow but good recovery, and is now working at the pit head, using an artificial limb with freedom.

Examination of Amputated Limb.

The knee-joint was found to be as I have described; the gastrocnemius and soleus muscles were torn at the thickest fleshy part, and there was a great deal of tissue bruising. There were no blood clots in the veins, and no signs of any injury to vessels. The foot was black.

I have seen the record of five such cases in England, and one in Scotland, and in all the cases gangrene of the foot resulted and necessitated amputation of the limb.

FRACTURE OF CERVICAL VERTEBRAE.

I have now seen several cases of spinal fracture; by that term I include cases of spinal dislocation, as it is impossible to distinguish between the two, when either is grave and involves pressure upon the spinal cord.

The spinal cord terminates at the lower edge of the twelfth dorsal vertebra, so that fracture of the lumbar vertebrae involves only the nerves, and when the pressure is removed paralysis usually disappears, but fracture of the dorsal or cervical, as a rule, not only causes pressure upon, but rupture of the cord, and in these cases death sooner or later results. In three cases I have had of dorsal fracture death resulted during the third year. The higher the injury the more serious and the more rapid the case. In the following case the fracture was an exceptional and interesting one to study.

J. M., an inspector, aged 59, going his usual rounds, approached a coal face, where the miners were sitting at rest. He also sat down in the miners' usual position, that is by extreme flexion of knee-joints, almost sitting on his heels, with his back against the side of the workings. While sitting there a large stone, weighing about $1\frac{1}{2}$ cwt., shot out from the roof above him; its edge struck him upon the forehead, causing sudden over-flexion of the chin upon the chest.

Condition on Examination.

There was no external injury beyond a slight graze on the forehead. There was great mobility of the head and of the cervical region, in any direction, giving a feeling of looseness; there was general paralysis and anaesthesia up to the level of the fourth rib; from the fourth rib to the clavicle there was slight sensation; the arms could be moved with great difficulty, and sensation in them was impaired; above the clavicle sensation was normal. The only movement to be seen was movement of the head with pain and movement of the diaphragm. The ribs were fixed owing to complete paralysis of the muscles of respiration, even of forced respiration, the breathing was Cheyne-Stokes type, the pulse was of low tension and feeble, and the heart sounds weak. The seat of injury was at the sixth and seventh cervical vertebrae.

The man lived sixty hours, the pulse and heart showing pro-

gressive weakening, until death resulted from extreme lividity and a great struggle for breath. The bladder and bowels had to be relieved.

The interesting points of this case are:

1. The brachial plexus arises from the fourth cervical to first dorsal; the fracture being between the sixth and seventh cervical involved the major part of this plexus, hence the partial paralysis of the arms and the diminished sensation, so that while movements of arms existed, they were a terrible burden (as the man expressed it), the nerve power of the fourth and fifth not being sufficient to carry the weight of the arms. This experience makes one think of the relation of the nervous system to the physical frame—the power of the nervous system, and the weight of the physical frame. If the nervous system of the individual is in proper working order, the physical frame has no conscious weight; if the balance is upset, then the physical system is a conscious burden.

2. Breathing was carried on by the diaphragm alone; one could watch the abdomen rising and falling as the man gulped the air, but the chest was absolutely still. Here the pneumogastric and phrenic nerves did their duty. The pneumogastrics, arising from the medulla and passing direct from the skull into the neck, escaped injury. The

phrenics, which arise from fourth and fifth cervical, pass down the middle mediastinum to the diaphragm. The laryngeal nerves, being branches from the pneumogastrics and supplying sensory and motor branches to the larynx and the muscles of the cord, the voice was natural. It is also worthy of note that the sterno-mastoid muscles were strained and outstanding, showing that the spinal accessory nerves were uninjured. They arise from the cord in the region of the fifth and sixth cervical, and passing up the

spinal canal appear in the neck through the foramen lacerum posticum, and supply motor fibres to pneumogastrics. The area of sensation was also limited to the distribution of the cervical plexus and the uninjured part of the brachial plexus. The cervical plexus is divided into three parts—ascending, descending, and deep. The area covered by the two former extends from the clavicle to the lower jaw; the sensation over this area was normal. The deep cervical includes the phrenics, which are the motor nerves of the diaphragm. The muscles of forced respiration have their nerve supply from the brachial plexus; they, therefore, were paralysed.

THE VALUE OF OXYGEN IN PIT RESCUES.

Pretoria Pit, situated about one mile from Clackmannan, is worked in two seams—an upper seam, 35 fathoms deep, and a lower seam, 40 fathoms; that is, there are 5 fathoms or 30 ft. of rock between the upper and lower seams; the gradient is 1 in 5. The pit is surrounded on all sides by old workings, containing water and foul air. Three-quarters of a mile to the west of the pit is a large unused quarry, covering several acres of ground, and about 40 ft. deep, full of water; an old pit shaft opens into this quarry. The drainage of the surrounding district is led into this quarry. The water suddenly broke into the lower seam, and shortly

afterwards it was found that the water level of the quarry had fallen rapidly. After the flooding was complete the whole amount of air in the lower seam would be about 20,000 cub. ft., coming from all the various passages and openings of every description. All the men except five escaped. Three of these were in the rise of one road, two were locked up in another. The three had about 70 yards of road to creep about in. The two were locked up in a space 2 ft. 6 in. high, 3 ft. broad, and 18 in. from tail of water to coal face. They were sitting with their backs against the coal face and their feet in the water.

The sketch is a rough horizontal plan of the lower seam.

The men were discovered in the usual way. They scored the roof with a stone, and the sound was heard by the search party in the upper seam.

After ten hours' working with pumps it was found impossible to gain on the water, and it was decided to sink a dumb shaft from the upper to the lower seam, near the point where the men were heard knocking. Before starting the dumb shaft, a 3-in. bore-hole was rapidly put down, when it was discovered that there were only three men here, a father and two sons; another search was made, when the other two men were located, a father and son. The three men were fed and kept supplied with candles through the bore-hole until rescued. The pit chart showed the other two men to be in such a perilous position that nothing could be done from the upper seam to save them.

The study of the rescue resolves itself into two stages, in so far as the air island is concerned:

First Stage.—During the entombment of the five men prior to the shaft being sunk.

Second Stage.—During search and rescue of the two men after the shaft was sunk.

First Stage.—There would be about 20,000 cub. ft. of air kept in motion, as to be here described, and all available.

Second Stage.—The air space at once became limited to about 7,000 cub. ft. for all purposes, as now the air tended towards the dumb shaft, and left only the air of the passage we were actually in— $600 \times 3 \times 4$ ft.

Oxygen was liberated in a space $90 \times 3 \times 4 = 1,080$ cub. ft., and gradually worked its way to the dumb shaft, oxygenating 7,000 cub. ft. of air, or an air area equal in size to that contained in an ordinary drawing-room, scattered throughout which were twenty men. It took three hours to complete the rescue, so that each man had roughly 2 cub. ft. of O_2 for three hours, which proved sufficient.

When the pit was suddenly flooded, on February 3rd, 1906, at about 9.30 a.m., the section where the men were entombed was completely isolated by water, and they were left in an island of air, which was compressed by the sudden roofing of the water.

This section was a main road with several side roads leading from it, the average height being about 2 ft. 9 in., the breadth about 5 ft., and the length about 70 yards. The contained air of this main road and the side roads was estimated at 20,000 cub. ft. The five men were breathing this air for four days, three of them also having a light burning, and thus causing an alteration of the component parts of the air, diminishing the oxygen and increasing the percentage of CO_2 . The other two men were in darkness.

On February 6th at 8 p.m., when the sinking of the dumb shaft was completed, the compression was relieved, and exhalation at once began until air equilibrium was established. This exhalation of air diminished the amount of air in the lower seam. After the three men were removed twenty men now went down the shaft, and proceeded to effect communication with the remaining two men still entombed. In about three hours a stage was reached at which lights would not burn, and breathing was only possible with difficulty; work had to be suspended, and the rescuers were left in darkness. An interesting question here arises: (1) What is the lowest percentage of oxygen compatible with conscious life? (2) What percentage of CO_2 gas may be mixed with air and yet conscious life be supported, and for how long?

At this stage, which was midnight February 6th-7th, about 40 cub. ft. of oxygen was liberated at a point about 150 yards from the dumb shaft, and several feet from the two imprisoned men. This so altered the air condition that lights were got to burn, breathing became easy, and work, which had been suspended, again commenced. The oxygen supply was kept up as required until 4 a.m., when we all arrived at the upper seam.

EFFECT OF CHESTING WATER UPON AIR CONTAINED.

During February 4th, 5th, and 6th, while the dumb shaft was being sunk, and before the complete penetration of the rock strata, the air was confined and compressed between the tail of the water in the various roads on the one side and the coal face on the other. The tail of water was a movable, the coal face a fixed, quantity. The water chests, proceeding up and down the shafts, impinging against the water in the shaft before filling, and lifting each time about 1 ton of water to the surface, set up a movement along the water throughout the pit, thereby causing for each impingement a tidal move at the tail; this tidal movement communicated itself to the confined air at various points surrounding the places of entombment, and thereby kept the air in motion, causing a continuous mixing and aiding ordinary physical diffusion, thus preventing stagnation of CO_2 gas produced by the breathing and lights.

On the evening of February 6th, when the shaft was sunk, compression was relieved, exhalation took place, and although chesting was continued, the movements now communicated from the water to the air became less effective, as all air movement at once tended towards the point of least resistance, the dumb shaft.

It follows: (1) That as the dumb shaft was a funnel from the lower seam to the upper, and the only opening, no air could be sent down that shaft. (2) That the twenty rescuers in the lower seam were consuming and burning the air oxygen, and liberating CO_2 gas at a point about 150 yards away from the dumb shaft.

The CO_2 gas rapidly increased, and any movement communicated from the water to the air simply mixed a highly poisoned air with a less poisoned air, as no fresh air could gain entrance; during this time also the water level was lowering, and there is no doubt that CO_2 gas, or black damp, was creeping on us from some old workings. At this stage, when lights went out owing to CO_2 gas, it mattered little whether water chests impinged on water or not, as all the confined air was highly charged with CO_2 gas, and all air movement was towards the dumb shaft.

The only thing now was to liberate oxygen as near as possible to the imprisoned men; a displacement of gases followed, and a diffusion of oxygen through the poisonous air; the oxygen effect beginning at the point of liberation, and gradually working its way backwards to the dumb shaft. This is what I expected, and what happened. During this final stage the rescuers were in an atmosphere of CO_2 gas in which no lights would burn for about fifteen minutes.

PROOF OF OXYGEN TRAVEL.

When proceeding down with the oxygen from the dumb shaft, the first few yards of our journey lights burned; as we went in they gradually lessened, and finally went out; about 80 yards in we passed some of the rescue party scattered and sitting in darkness; we proceeded about 60 yards in advance of them, and then gradually liberated the oxygen. The lights were soon set burning at the point of liberation, and some time afterwards the party of men we passed also got their lights to burn; and in both places lights burned until we all arrived safely at the upper seam.

LESSONS DERIVED.

1. In all cases of similar entombments it would be advisable, while sinking a large shaft for rescue purposes, also to sink a large bore hole at the far end of such a position. Had a 3 in. bore hole been sunk near the place of entombment of the two men a current of air would have been established, and the difficulties we had to contend with avoided.

2. The necessity under such circumstances of taking into account the amount of available air, and the number of men sent into it. If the air is limited, as in this case it was, then the number of men sent down should also be limited, and men not actually working ought to come to the upper seam, all reliefs being kept there, and sent down as required.

Here let me add that acetylene gas will burn in a percentage of CO_2 gas with air in which an oil wick light will not. Whether this fact has been proved by former experiments or not, I cannot say, but it was so in this case.

On the afternoon of February 7th I again went down the pit, and found the air in the lower seam so foul and

charged with CO₂ gas that no light would burn; even in the dumb shaft, and descent was impossible. On February 10th the water was reduced to the level of the roads, thereby allowing an air current which cleared away the island of CO₂ gas, and I travelled over that section of the pit with safety and with lights.

These facts prove also my statement that no air could enter the section where the rescue party were working unless a bore hole or other opening had been made as stated.

The first fact shows the dangers we all passed through, and establishes for all time the value of oxygen in all such cases. Had oxygen not been used, the two men would have lost their lives.

In conclusion, I should like to say:

1. That oxygen gas is an absolute necessity and a valuable adjunct to all pit plant.
2. That the men ought to be trained in its uses.
3. That its properties and uses should form a part of the examination for a manager's certificate.

A SIMPLE METHOD OF ESTIMATING AMMONIA IN THE URINE, SUITABLE FOR CLINICAL PURPOSES.

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A KNOWLEDGE of the amount of ammonia present in the urine has an important practical value in many conditions met with in everyday practice. Normally about 3 per cent., in disease as much as 50 per cent., of the nitrogen excreted in the urine is in the form of ammonia. In diseases associated with grave metabolic upset, particularly where gross changes take place in the functions of the liver, and in severe toxæmias such as those not infrequently seen during pregnancy, the amount of urea is usually greatly diminished and its place is taken by ammonia and allied bodies. In the condition known as acidosis the formation of acid products, such as aceto-acetic and beta-oxybutyric acids in intermediary metabolism, necessitates the utilization of ammonia to effect their neutralization. The ammonium salts formed are excreted in the urine, and the quantity of these present, especially in its relation to the amount of urea, gives an excellent and early indication of the existence and extent of the metabolic perversion. The estimation of the organic acids excreted is a matter of very great difficulty; but since they are in combination with ammonia, the estimation of this body will afford information as to the quantity of these acids present. It is thus obvious that a simple method of estimating ammonia is greatly to be desired. It is only large quantitative changes in the output of ammonia that are clinically significant; in pathological conditions the nitrogen present as ammonia frequently constitutes 25 per cent., while it sometimes reaches 50 per cent., of the total. Thus the employment of an elaborate method of estimation in an attempt to obtain particularly accurate results is unnecessary.

The methods commonly employed¹ are either too inaccurate or too elaborate for clinical purposes. The best is probably the method of Folin,² which necessitates the employment of apparatus only found in a well-equipped laboratory, and the expenditure of several hours to perform; even this method, however carefully carried out, is not free from sources of error.

Malfatti³ has recently described a method that is admirably suited for clinical use, since it is simple and rapid, requires no special apparatus, gives consistent results, and possesses a sufficient degree of accuracy.

The method depends on the reaction that takes place when a solution of an ammonium salt is treated with formaldehyde. Combination occurs between formaldehyde and ammonia with the formation of urotropine, as shown in the equation

The acid previously combined with the ammonia is liberated, and can be titrated. The procedure is conveniently carried out as follows:

Twenty-five c.cm. of urine are measured with a pipette into a conical flask of about 250 c.cm. capacity, and diluted with

about 50 c.cm. of distilled water. Four drops of a 1 per cent. alcoholic solution of phenolphthalein are added, and decinormal sodium hydrate is run in from a burette till a definite pink colour that does not disappear on shaking is attained. The number of cubic centimetres of decinormal soda added gives the acidity of the urine. About 5 c.cm. of commercial formalin that have been neutralized beforehand by adding an equal volume of water, a drop of phenolphthalein solution, and sufficient decinormal soda to produce a pink tinge, are now added to the urine. The pink colour at once disappears, since the acids previously combined with ammonia in the urine have been liberated.

More decinormal soda is added till the pink colour reappears. This amount of NaOH is chemically equivalent to the ammonia previously present as ammonium salts, now in combination as urotropine. The amount of nitrogen present as ammonia in the twenty-four hours' urine can readily be calculated, since 1 c.cm. of decinormal soda is equal to 0.0017 gram of NH₃—that is, to 0.0014 gram of nitrogen.

I have found that the accuracy of this method can be considerably increased by adding 15 grams of powdered neutral potassium oxalate to the urine and shaking for two minutes before titrating; the end point is rendered much sharper, partly owing to the precipitation of calcium, partly to a diminution of the influence of ammonium salts, both calcium and ammonium salts having a disturbing influence on the end point of the first titration.⁴

I have compared this method with Folin's, carried out under the standard conditions laid down by him, in a large number of urines. The following is a sample of the results:

Grams of Ammonia Nitrogen in 100 c.cm. Urine.

Urine No.	Formaldehyde.		Folin.
	Without oxalate.	With oxalate.	
1	0.074	0.078	0.066
2	0.067	0.069	0.063
3	0.051	0.053	0.052
4	0.056	0.060	0.052
5	0.026	0.029	0.025

In all the urines examined the formaldehyde method gave higher results than the Folin method—usually about 15 per cent. higher. This represents about 1 per cent. of the total urinary nitrogen. What the causes of this discrepancy are cannot definitely be stated. None of the ordinary urinary constituents are affected, under the conditions of the method as described above, in such a way as to exert any influence on the titration.

Uric acid, for example, though affected by formaldehyde in the presence of excess of alkali,⁵ can be added to urine in large quantity without altering the ammonia value given by the above method.

Sorensen has shown that formaldehyde combines with the amino group of amino acids, setting free carbonyl radicals, which act as acids and may be titrated, affording a measure of the amino acids. It was found that the addition of glycocholic and several other amino acids to the urine increases the ammonia value as given by the formaldehyde method, so that possibly the difference between this and the "Folin" value represents amino acids. Whether these are present in normal urine is at present a matter of dispute, but in pathological conditions—usually those in which the ammonia output is high—large quantities of amino acids are excreted. These bodies have replaced part of the urea, and their significance clinically is similar to that of excess of ammonia. The fact that the formaldehyde method gives the sum of ammonia and amino acid value is thus rather an advantage than otherwise. If it is desired to estimate the amount of amino acids excreted in cases in which the output is high, an approximate result can be arrived at by subtracting the Folin from the formaldehyde values.

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