liver, liver extract, nor any specific remedy for pernicious anaemia. This he has done for the past six months, and without any treatment whatsoever he has maintained perfect health, with a blood count around 4,500,000 red blood cells, and a haemoglobin percentage of 90. When last examined (December 21st, 1932) both patient and doctor were entirely satisfied with the result.

DISCUSSION

It can be safely said that the blood picture present in this case contains every feature on which the diagnosis of Addison's pernicious anaemia rests, and there can be little doubt that, had this patient suffered from the malady previous to 1926, he would have died. The megaloblastic degeneration of the bone marrow present previous to treatment can be explained as a consequence of the gradual and progressive loss of the ability of the stomach to secrete the intrinsic factor (Castle) which is essential for the continuation of normal blood formation. In idiopathic pernicious anaemia the cause of this failure in secretion is not properly understood, but in any hypothesis submitted it would be necessary to consider the constitutional factor as of great importance. In the case reported above, which can be classified as *acquired* pernicious anaemia, the deficiency was probably due to a gastritis conditioned by the abuse of alcohol and tobacco, together with the deleterious effects of malarial toxæmia. An inquiry into the patient's dietary during the past year clearly indicates that, consequent on the loss of appetite resulting from the gastritis, the dietary became progressively more and more defective in protein intake and in foodstuffs rich in the extrinsic factor of Castle. A consideration of these points throws some light on the natural history of the disease, and the mechanism of the remissions which were of such common occurrence in idiopathic pernicious anaemia previous to the inception of liver therapy in 1926. In the majority of cases of pernicious anaemia the onset is insidious, and many months elapse before the blood level reaches the stage at which symptoms are of sufficient severity to demand medical advice. At any period previous to the complete and final failure of gastric secretion a temporary improvement in the secretion of the intrinsic factor may occur, consequent on causes unknown or known (drug therapy, or even rest). In addition, provided any intrinsic factor is present, the temporary ingestion of foodstuffs rich in the extrinsic factor will also be effective in starting a remission. The reduction of the anoxaemia and the improvement of the general circulation, which follow a rise in the blood level, will in turn benefit the secretory mechanism of the stomach, with a further increase in production of the intrinsic factor. This has actually been shown to be the case in one of Castle's patients, and I have repeatedly seen the stomach regain its secretory properties in regard to hydrochloric acid and pepsin in cases of simple achlorhydric anaemia of ten years' standing or longer, in which the blood level had been brought up to normal by treatment with massive doses of iron. In idiopathic pernicious anaemia no known method exists by which a progressive loss of the secretory power of the stomach can be stopped, and in consequence remissions are invariably followed by relapses, until death finally ensues. Where a definite cause can be found and then removed, as in the present case, a complete cure may be expected to result.

SUMMARY

1. A case of pernicious anaemia is described in which the stomach regained the power of secreting hydrochloric acid and pepsin, and in all probability the intrinsic factor of Castle.

2. The patient has maintained excellent health and a satisfactory blood level for the past six months on a

normal diet. While it is necessary to await developments for another year, it is not unreasonable to assume that this case of pernicious anaemia has been cured.

3. The mechanism of the natural remissions which occur in pernicious anaemia is discussed.

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FORCIBLE NASAL INSPIRATION

BY

SIR JAMES DUNDAS-GRANT, K.B.E., F.R.C.S.

M.A., M.D.

In one of my cases of tonsillectomy by dissection in an adult I was sent for on account of bleeding on the sixth day. The bleeding was not coming from the tonsillar bed, but from the left half of the nasopharynx, from which a small amount of adenoid tissue had been removed. After cleansing with peroxide of hydrogen (10 vols.) diluted with an equal quantity of warm water, I instructed the patient to make *several forcible nasal inspirations, each followed by the gentlest expiration through the mouth*. The haemorrhage diminished very perceptibly. The blood-stilling action of the forcible inspiration depends on the fact that the powerful expansion of the chest leads to a dilatation of the hollow organs in proportion to the degree of their softness. The right cavities of the heart are the most dilated, but the general dilatation leads to blood being sucked into the thorax and a consequent lowering of pressure in the peripheral vessels, including those of the throat and nasopharynx. When the nose and mouth are completely closed the action is at its highest, and diminution of pressure in the radial artery is very obvious to the finger on the pulse.

Among other means of checking haemorrhage from the nose or throat, one which will be found most useful is a clinical application of J. Müller's experiment dating from 1838, which is described in Landois and Stirling's *Textbook of Human Physiology* (third edition, p. 89), as follows:

"If after the deepest possible expiration the glottis is closed, and the chest be now dilated with a great inspiratory effort, the heart is powerfully dilated, the elastic traction of the lungs, and the very attenuated air in these organs, act so as to dilate the cavities of the heart. More blood flows into the right heart, and, in proportion as the right auricle and ventricle can overcome the traction outwards, the blood vessels of the lungs become filled with blood, and thus partly occupy the lung space. Much less blood is driven out of the left heart, so that the pulse may disappear. Hence, the heart is distended with blood and the lungs are congested, while the aortic system contains a small amount of blood—that is, the systemic circulation is comparatively empty, while the heart and the pulmonary vessels are engorged with blood."

The procedure as applied to haemostasis is recommended by G. Krebs,¹ who gives the instruction to inspire deeply with the mouth closed and to expire gently with it open. He quotes the authority of Karl Hueter, whose explanation he gives as follows:

"The blood is thereby sucked into the thoracic cavity and the nasal mucous membrane is rendered bloodless; but at the same time, owing to the inspiratory draught towards the nasal cavity, the outflowing blood is, to a certain extent, fixed in the open lumina and closes them as it coagulates."

It may, however, lead to syncope from a lowering of the cerebral blood pressure, and it is, I believe, the

predominant factor in the production of what was formerly called "laryngeal vertigo," an error corrected by Peter McBride, who pointed out that it was really a "laryngeal syncope." This accompanies a cough, and is best explained by inspiration during the momentary closure of the glottis, with which a cough is initiated, causing a momentary cerebral anaemia. In most of my cases of laryngeal syncope there has been a strong suspicion of arteriosclerosis of the cerebral vessels, which would produce rigidity of their walls and facilitate the suction of the contained blood.

The possible abuse of forcible nasal inspiration was demonstrated in a case which was referred to me of a middle-aged man with exceptionally powerful physique, who sought treatment for shortness of breath, and showed signs of dilatation of the heart. I was asked for an opinion as to his nose, and I found both nasal cavities almost completely occluded by the inferior turbinated bodies, which were turgid in the highest degree. He had been conscious of the obstruction for a considerable time, but in order to keep up his muscularity, of which he was extremely proud, he practised Sandow's exercises, which called for forcible inhalation through the nose, with intense zeal. The negative pressure in the chest acted on the heart, and produced the dilatation from which he suffered. The galvano-cautery point was used for the turbinated bodies, and free nasal breathing was restored. He wrote later to say that the relief then afforded him had continued.

I cannot help feeling that great discretion is required in directing children to practise nasal inspiration when the nose is obstructed. Common-sense methods should be employed for judging whether or not the nose is at least "fairly free" before the exercises are started. If such is not the case the cause of the obstruction, usually adenoids and occasionally congenital occlusion of the posterior choanae, should be rectified. If the nose is free these exercises are recommendable; after the removal of adenoids they are practically indispensable if the best results are to be obtained.

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MULTIPLE-PUNCTURE CUTANEOUS TUBERCULIN TEST

BY

W. S. CRAIG, B.Sc., M.B., M.R.C.P.Ed.

ASSISTANT, DEPARTMENT OF CHILD LIFE AND HEALTH, UNIVERSITY
OF EDINBURGH

With the growing appreciation of the value of the tuberculin skin test there is an increasing need for a method which, in simplicity of technique, will appeal alike to practitioner and clinic worker, and which will, at the same time, give sufficiently trustworthy results to satisfy the most exacting statistician. At present no test in common use satisfies these requirements. The Pirquet test is very easy of application, but even when modified as suggested by McNeil,¹ Wahl and Gerstenberger,² and Ström³ its sensitivity has been said to be less than that of the intracutaneous method.^{4 5 6} The Mantoux test, on the other hand, requires the use of a syringe, takes time, and requires a certain degree of skill for its performance. In December, 1931, a form of cutaneous test was described⁷ which is simpler in technique than either the Pirquet or the Mantoux method, and which, judging by first results, appeared to be as reliable. The work in connexion with the test, commenced in Edinburgh, was continued in Bradford, where I had access to the wards

of St. Luke's Municipal Hospital, the City Infectious Diseases Hospital, and the Bradford Children's Hospital. The results, in a series of 2,009 cases (see table) confirm earlier impressions of the reliability of the method.

Cutaneous tuberculin test instrument (half scale).

INSTRUMENT AND TECHNIQUE

The instrument used (see figure above) consists of a short handle carrying at one end five needle points and fitted with a protective cap. The test is carried out as follows. A small area of skin is first cleansed with methylated ether. Then the flat spatula end of the instrument is dipped into a bottle containing undiluted old tuberculin, and a drop of the latter is transferred to the cleansed skin surface. The instrument is next held so that all five needle points rest on the portion of skin covered with tuberculin. Owing to the different lengths of the needles this involves holding the instrument so that its handle is at an angle of 30 degrees to the skin surface. With the instrument held thus it is easier to carry out the next step, which consists in quickly applying firm pressure at right angles to the test area so that all five needle points simultaneously penetrate the superficial layers of the skin. These points are then rapidly withdrawn and superfluous tuberculin is wiped off. The result of the test is read in forty-eight to ninety-six hours.

ADVANTAGES OF METHOD

In favour of the test the following claims may be made:

1. *Simplicity of Instrument.*—It can be carried conveniently in the waistcoat pocket, and, being unpretentious, it gives rise to no apprehension in children.
2. *Prolonged Potency of Tuberculin Employed.*—As has elsewhere been brought out¹¹ undiluted tuberculin retains its potency indefinitely; whereas diluted forms, as used in the Mantoux test, require to be freshly prepared.
3. *Simplicity of Technique.*—Repeated control tests have shown that one demonstration will enable those inexperienced in the method to carry it out successfully. Even with small infants the test can be performed without assistance, as it requires the use of only one hand, the other being available for the momentary control of the patient's arm.
4. *Rapidity.*—Even in the hands of the novice, the test takes less time than the Pirquet, and very much less than the Mantoux method. When large numbers have to be tested at one time the speed of the technique becomes still more apparent: working from bed to bed and with a nurse cleaning the arm of the patient in advance, the writer has frequently tested all the fifty occupants of a ward in under twenty minutes. Moreover, that this was accomplished without any sacrifice of reliability was proved by the incidence of almost 100 per cent. positive reactions in adult wards. In clinic or school work, where patients could be made to file past those performing the test, progress would be even speedier.
5. *Painlessness.*—Performance of the puncture is such a momentary affair that even the nervous child has no time to be upset, and it is not uncommon to find an infant unconcernedly continuing with its bottle feed while the test is being carried out. In the severest reactions slight itchiness locally was the sole complaint.
6. *Absence of Local Trauma and Systemic Reactions.*—In the entire series of cases no instance of these complications arose.
7. *Repetition Unnecessary.*—Repetition of the Pirquet test has been reported to increase the number of positive reactors,^{3 5 8} and optimum results with the Mantoux method are obtained by repeating it with progressively stronger concentrations of tuberculin.⁴ With the multiple-puncture test no case once negative was found to give a reaction after further applications. Taking into account the fact that the