specimen of urine in the beaker proved to be complete, the re-extraction giving no salicylic acid. The second urine specimen was halved, and one half (108 c.cm.) was extracted twice as above, the other half being used as a check by extracting once only by vigorously shaking in the separating funnel. In this instance the beaker method gave no colour indicative of the presence of salicylic acid, whereas the second extraction gave a distinct trace (a, Case C). The check half of the urine gave a more distinct trace (b, Case C). These results, therefore, indicate that the open beaker method is the less reliable of the two.

7. In Case D the extract gave a more decided colour reaction than any of the others with bile pigment present, and it was interesting to find that the effect of the yellow bile pigment could be exactly imitated in the tubes with the violet standards by mixing with a few drops of the yellow solution of potassium chromate.

Summary.

The foregoing is a report on work done in trying a new test for hepatic efficiency, based on the use of sodium salicylate, as described in the *British Medical Journal*.

The preliminary work consisted in trying the test on a selected patient, and then comparing the result with that obtained with a normal adult. As the results were the same in both cases further investigation was considered necessary, especially as a doubt arose about the reliability of the statement that "normal adults could assimilate a 3/5-grain dose of sodium salicylate, no trace appearing later in the urine."

The later experiments were carried out with three more normal adults and other three cases with damaged livers, all the results being shown in tabular form, followed by a discussion of the tables in the form of notes, explaining how and why the method of extracting the salicylic acid was slightly varied, and pointing out that bile pigment modified the violet colour of the salicylic acid test to a brown, which could be matched in the standard colour tubes by the addition of potassium chromate.

Conclusion.

1. The tables show that salicylic acid appeared in the urine of each of the four healthy adults after the ingestion of a small dose of sodium salicylate, as well as in that of four other cases with damaged livers.

2. Its appearance in the urine of the first hour confirms the statement quoted in reference to the pharmacology of salicylic acid, and does not support Thiers's statement.

3. The tables show that no distinction can be made by means of this test between the four normal adults and the four cases with damaged livers.

From the above results it is concluded that this test, as described in the publication referred to, can be of no use in classifying cases with damaged livers, or in measuring the extent of the damage.

REFERENCES.

- ¹ H. Thiers: *Lyon Médical*, May, 1927.
- ² *British Medical Journal*, February 11th, 1928, p. 231.
- ³ W. Hale-White: *Materia Medica*, edition 1920, p. 490.

BRONZED DIABETES IN A WOMAN.

BY

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I VENTURE to publish these notes on account of the rarity of bronzed diabetes in women, and because this case seems to have run an unusual course. The patient was seen at the maximum of bronzing by three other medical practitioners, who could suggest no other diagnosis; one who had previously seen a case (in a man) thought the bronzing typical.

The clinical details available are as follows.

Family History.—The grandparents all lived to advanced ages; the father died of uraemic coma at the age of 74, and the mother died of the same complaint at the age of 70. There were eight children, of whom the patient was the eldest. She was perhaps mentally the brightest of a not very bright family. The next in age, a male, died of "cancer of the liver," aged 30; he was

congenitally blind. The third, also a male, died of epilepsy at the age of 30. The fourth, a female, is living, mentally deficient and congenitally blind. The fifth, a male, is living and is normal. The sixth, also a male, is alive and normal, but mentally he is rather dull. The seventh, a female, is living; she is mentally deficient and congenitally blind. The eighth, a male, is living, and is normal. None of them show any signs of syphilis, and two who have been examined (the fourth and seventh) give negative Wassermann reactions.

Personal History.—This gives nothing of importance. The patient was a very stout woman, but exceedingly active. Her chief ailments have been flatulent dyspepsia and some cardiac insufficiency. She had had no medical attention for five years.

Clinical Details.

On November 11th, 1927, the patient was deeply jaundiced, with anorexia, but no sickness and no diarrhoea. She had become much thinner since the previous May, the loss of flesh coinciding with extreme thirst.

The liver was easily felt two inches below the costal margin, and the spleen about the same. Both were smooth, regular, and soft. The liver was slightly tender. Nothing else abnormal was found. The heart sounds were normal, but muffled, and the lungs were normal. The urine contained much bile pigment, but no albumin; sugar was present in large quantity. At this time there were on the forehead and forearms what appeared to be a few freckles.

The jaundice cleared up under treatment in ten days. The patient was put on a strict non-carbohydrate diet. The urine sugar rapidly diminished, and early in December, 1927, the urine contained only a trace. A blood examination gave 65 per cent. haemoglobin and a normal white cell count.

On December 12th there was a sudden rise in the urinary sugar, and acetone was present. The patient became partially comatose, and had apparently marked pain over the spleen. She remained in this condition, sometimes rousing and sometimes completely unconscious, for a month, the heart gradually getting weaker and dropsy developing; but the sugar had completely disappeared from the urine on December 20th, and was never found again until just before her death.

During this period pigmentation became very apparent, involving the face, neck, forearms, and both groins, with scattered patches on the abdomen, back, and both thighs. The pigmented spots were of all sizes up to a threepenny piece, many coalescing. Her face presented a curious appearance—a mottling of yellow shading up to deep-bronze on a skin almost mauve in colour. There was incontinence of urine and faeces, and bedsores developed. By this time the liver and spleen both reached halfway from the costal margins to the umbilicus.

From the middle of January, 1928, she began to improve. The heart regained its tone; her colour became normal except for the bronzing; the bedsores healed; the appetite returned. In July she was downstairs, walking in the garden, and doing needlework. The bronzing was beginning to fade. From now on she was seen and the urine examined at fourteen-day intervals.

On November 9th, 1928, five days after the last visit, she suddenly complained of feeling very ill—"just as I did before." The urine was found to contain a fair amount of sugar. She became comatose on November 10th, and died the following day.

Post-mortem Findings.

Only a partial necropsy was allowed. There appeared to be no pigmentation of the peritoneum. There was little free fluid, and this was clear. No abnormal mass or tumour could be found. The liver was about two and a half times its normal size, and appeared uniformly enlarged. It was smooth, rather soft, and pale; it was densely adherent posteriorly. The gall-bladder and duct were normal. The spleen measured roughly 9 in. by 5 in.; it was smooth, extremely friable, and adherent to the periphery and omentum. Both kidneys were enlarged and soft. The heart was enlarged and infiltrated with fat; the valves showed no disease. There was some staining of the pericardium, but not enough to be definitely called pigmentation.

Pathologist's Report

Portion of Spleen.—There is general slight chronic perisplenitis. The pulp is soft. A few dark points are seen. The Malpighian bodies are not easily distinguished and not much fibrosis can be discerned.

Liver.—There is generalized monolobular cirrhosis with much yellow pigmentation along the prolongation of Glisson's capsule. The liver substance is fatty.

Pancreas.—The glandular tissue is largely replaced by fat. No pigmentation can be distinguished.

Suprarenals.—Soft, but normal.

Kidney.—It is slightly enlarged and soft. The cortex is not clearly diminished; it is pigmented and yellow. The capsule strips leaving a number of arterio-sclerotic depressed patches of various sizes. The pyramids show whitish streaks towards the papillae.

Microscopic Examination.

Spleen.—The pulp is of a loose fibrotic texture; the Malpighian bodies are atrophied. The trabeculae appear normal, but bacillary emboli are present in some of the vessels. There are no gross lesions anywhere to be seen. Many of the cells contain pigment granules, and free granules are also present, but it is not possible to say how much of this is due to post-mortem change. The iron reaction of the spleen is feeble and consists of occasional blue granules.

Liver.—There is a moderate increase of fibrous tissue along Glisson's capsule. In the liver cells bordering the portal spaces there is a great increase of pigment. Marked cellular exudation is evident in Glisson's capsule. The bile ducts are normal and not increased in number. The cellular inflammatory infiltration consists of a proportion of polymorphs, more marked in the periphery of Glisson's capsule. There is a small amount of haemosiderin in the liver. It is mainly confined to the neighbourhood of the intralobular veins. There is no excess of haemosiderin in the portal spaces.

Pancreas.—There is shrinkage and atrophy of some of the acini, and in others the nuclei are stained more deeply than normal; some catarrh of the duct is present. The islets of Langerhans are present.

Kidney.—There is generalized chronic interstitial nephritis. In many parts of the section the descending loops of Henle are necrotic, probably due to *post-mortem* changes. There is some arterio-sclerosis and degeneration of some of the glomeruli up to complete atrophy. Here and there round-celled infiltration can be seen. There is much catarrh of the collecting tubules, and some of them contain cells full of pigment. The epithelium of the collecting tubules is impregnated with grains of pigment.

It is regrettable that the patient and her family absolutely refused her admission to hospital, where a more thorough clinical examination would have been possible.

My thanks are due to Dr. A. G. Gibson of Oxford for his kind interest in the case, his advice, and his examination and report on the *post-mortem* specimens.

LOCAL ANAESTHESIA IN OPERATIONS FOR HAEMORRHOIDS AND FISSURE OF THE ANUS.

BY

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THE use of a local anaesthetic for the operative treatment of haemorrhoids and fissure of the anus has many advantages over a general narcosis.

1. Any one of the numerous operations advocated for the cure of haemorrhoids can be performed quite painlessly, including the most painful procedure—the most dangerous of all with a general anaesthetic—dilatation of the sphincter ani.
2. Its innocuity, both local and general.
3. Its local action, lasting several hours after the operation, thereby curtailing the duration of after-pains.
4. The ease with which it can be employed.

These are all compensations for the extra time required in making the necessary number of injections and the following of an exact technique such as that to be described.

The use of dilute solutions for local anaesthesia (as here used) was first introduced by Schleich, but to Reclus belongs the merit of their popularization and their use in rectal surgery, more especially in operating on piles. For all practical purposes the method here given is his, with, however, some modifications which have been found to be useful. The solution for these operations which is recommended is composed as follows:

Novocain	...	...	...	...	0.5 cg.
Adrenaline (1 in 1,000)	...	...	...	...	24 minims
Physiological saline solution	...	...	...	...	100 c.cm.

Mix and sterilize.

It will be noted that the amount of adrenaline is small, but in practice it will be found to be ample (a dilution of 1 in 1,000,000 will produce a local ischaemia) for rendering the field bloodless, without fear of any subsequent sloughing, notwithstanding the large amount of the solution employed. It is, however, important that the percentage should not be stronger than indicated, and the injections must be well spaced so that a considerable extent of the subcutaneous tissue is infiltrated. When injection is not confined to a localized zone of tissue sloughing never occurs.

The injections are made in the following manner. The patient, having been duly prepared in the usual way, is put in the lithotomy position, the legs resting on some appropriate supports. (1) About six small pledgets of cotton-wool are first prepared, their diameter being that of the

little finger and their length one inch. They are tied in the middle with a piece of silk or linen thread, one end of which is left four or five inches long to be used as a tractor for removal. Pour into a sterilized receptacle 15 to 20 c.cm. of the solution, and place the pledgets in it. With the aid of a pair of artery forceps introduce the saturated pledgets one by one into the anus, asking the patient to "bear down" meanwhile; this renders the mucous membrane insensitive and relaxes the sphincter ani, as shown by the gaping of the anal orifice. (2) Swab with iodine the anus and surrounding skin. (3) Take an all-glass 5 c.cm. syringe and fill it with the solution; adjust an ordinary (not too fine) hypodermic platinum or nickel needle, push it into the cellular tissue at the junction of the skin and mucous membrane, and begin the injection. Push the needle along slowly, distending the tissues ahead of the needle-point with the solution; in this manner the fluid is infiltrated without pain. The first needle prick is all the patient need ever feel during the whole course of the operation. When the syringe is empty, withdraw the needle, refill and insert it again just beyond the middle of the swelling made by the previous injection. Repeat these injections in the same way so as to encircle the anus, special care being taken to go slowly when crossing the middle line, for the sensibility on the opposite side has not been affected by the injections already given. In all from six to eight injections are necessary—equal to 30 to 40 c.cm. of the solution. (4) Now remove the pledgets by traction on their threads; they will almost fall out by themselves. Fill the syringe and use a long medium-sized platinum or nickel needle. (5) Insert the forefinger of the left hand into the rectum, hook the internal sphincter with it so as to steady it and draw it down. (6) Pierce the tissues perpendicularly to the previous injections and at the same level; push the needle well into the sphincter, injecting meanwhile. It is of the utmost importance to steady the muscle so that it shall not slip away from the needle; this may be quite difficult to do towards the end of the injections, as the sphincter will be felt to "fade away," it having lost tonicity almost completely. Encircle it with six or seven injections—equal to 30 to 35 c.cm. of the solution. The insensibility will now be complete.

Wash the hands again (it is always well to wait about five minutes after the last injection before beginning the operation) and proceed with the preliminary requirement to all rectal operations—namely, stretching of the sphincter ani. In cases of simple fissure this may be all that is necessary to effect a cure; in others, and in fistulae, excision, curetting, and the use of the actual cautery can all be employed painlessly, the patient only experiencing a sensation of touch and the realization that something is being done. If piles are present they are now dealt with by any of the numerous methods, according to the choice of the operator. I prefer Mitchell's technique in general to all other methods for the removal of piles, whether pedunculated or with intervals or sulci; with a pair of Kocher's artery forceps clamp the pile and cut off the upper part. A running suture of catgut is passed under and over the forceps, a tie having been made after the first stitch under the clamp at the distal end of the pile to control more securely its blood supply. Now withdraw the clamp; pull the suture taut and tie it off. This is a very safe method, as the sutures will not slip, thus assuring complete haemostasis. The raw edges are turned in, and are therefore less painful. Any number can be dealt with; the results are excellent. A short piece of large rubber tubing, wrapped round several times with a strip of gauze well smeared with a 1 per cent. antipyrine ointment, is inserted. It relieves pain, and at the same time acts as a compressor against haemorrhage; it permits the free passage of flatus while controlling spasm, and can be removed in twenty-four hours or sooner should it cause discomfort.

I have used this method of local analgesia since 1910, and have never seen a complication of any kind nor a single slough induced by it in the considerable number of operations in which it has been used. The only likely complication is retention of urine, which is encountered also in general anaesthesia; this is due to the way the sphincter has been dilated.