he will be 6,000 feet (2,000 km.) up and nearly on the equator.—I am, etc.,

J. B. TAYLOR.

Paignton, Devon.

REFERENCE

- ¹ *Brit. med. J.*, 1966, 1, 1186.

Rehabilitation in the R.A.F.

SIR,—There is no doubt that the medical rehabilitation service established in the Royal Air Force during the last world war provided a great stimulus to the subsequent development of rehabilitation in many other parts of the world, and thus it is one of the most significant contributions of R.A.F. medicine.

It was surprising to find in a historical article, presumably an official one, on medicine in the R.A.F. (5 October, p. 48) that Squadron Leader J. A. Hopson should have got some of his facts wrong. Medical rehabilitation was introduced in the R.A.F. not by Group Captain O'Malley, as he says, but by Sir Reginald (then Mr.) Watson-Jones, civilian consultant orthopaedic surgeon to the R.A.F., and it was his inspiration and leadership which gave it its dynamics. O'Malley certainly made a considerable contribution on the organizational and promotional sides; he was an excellent administrator and public relations man, but he did not reach the rehabilitation scene before the end of 1943, by which time it was already well established.—I am, etc.,

A. ZINOVIEFF.

Department of Physical
Medicine,
Dryburn Hospital,
Durham.

** We have shown Dr. Zinovieff's letter to Squadron Leader J. A. Hopson, who writes: "It was not my intention to suggest that the creation of a rehabilitation service in the R.A.F. was the work of one man. I would suggest that Dr. Zinovieff is being less than fair when he states that Group Captain O'Malley did not reach the rehabilitation scene before the end of 1943. In fact he demonstrated an interest as early as 1935, and in 1940, at the request of the Air Member for Personnel, set out in great detail what he personally meant by the term rehabilitation. According to him it should mean mental, emotional, and physical restoration of each individual. A number of very eminent orthopaedic surgeons have contributed to the successful development of rehabilitation in the R.A.F., and we are specially pleased that Sir Reginald Watson-Jones has retained his interest in the Service and is an Honorary Civil Consultant in Orthopaedic Surgery to the R.A.F."—Ed., *B.M.J.*

Methaemoglobinaemia and Paracetamol

SIR,—Paracetamol in therapeutic dose rarely causes adverse reactions. Though it may produce methaemoglobinaemia both in cats¹ and in man² in abnormally high dosage, this has not been found in man after therapeutic amounts. The following case report is therefore of interest.

A 20-year-old woman was noticed to be cyanosed six hours after taking Panadol (paracetamol B.P.) tablets for post-partum pain. No abnormality was detected in the cardiovascular and

respiratory systems. Investigations confirmed the presence of methaemoglobinaemia with a plasma paracetamol level of 0.7 µg./ml. She made an uneventful recovery, being free from cyanosis 24 hours later.

Paracetamol was thought to be responsible for the methaemoglobinaemia in this case, although she had also received pethidine 150 mg. intramuscularly and Lethidrone (nalorphine hydrobromide) 10 mg. intravenously 36 hours previously, and Soneryl (butobarbitone) 100 mg. 12 hours before taking the paracetamol tablets. She had not taken paracetamol prior to this, although she had had butobarbitone before without ill-effect. Further provocation with paracetamol was not considered. Although rarely responsible in therapeutic dose, paracetamol should therefore be considered as a possible cause in all cases of methaemoglobinaemia.

We are grateful to Mr. Andrew Robertson, Laboratory Manager, Winthrop Laboratories, Fawdon, Newcastle upon Tyne, for arranging the paracetamol assay.

—We are, etc.,

D. MACLEAN.

P. G. C. ROBERTSON.

SHEILA BAIN.

Royal Infirmary,
Dundee.

REFERENCES

- ¹ Thomas, J., McLean, S., Starmer, G. A., and Carroll, P. R., *Lancet*, 1966, 2, 1360.
² Kiese, M., and Menzel, H., *Arch. exp. Path. Pharmacol.*, 1962, 242, 551.

Crohn's Disease

SIR,—The review on Crohn's disease presented by Professor G. Slaney (3 August, p. 294) presents an excellent and extremely informative article on this disease.

However, I must draw attention to a minor error which appears in the article. Professor Slaney states that "the non-absorbable sulphonamide preparations, especially salicylazosulphapyridine 1.5 g. q.d.s., may be useful during an acute flare up." In fact Salazopyrin (salicylazosulphapyridine) is absorbed to some extent from the gastrointestinal tract. There are a number of papers which show this.¹⁻³ In one of these,² it is shown that a dosage of 1 g. Salazopyrin daily for five days in humans gives Salazopyrin blood levels of the order of 2 mg./100 ml.—I am, etc.,

R. H. ROUSELL,

Medical Adviser,
Pharmacia (Great Britain) Ltd.

REFERENCES

- ¹ Helander, S., *Acta physiol. scand.*, 1945, 10, Suppl. No. 29.
² Böttiger, L. E., and Möllerberg, H., *Acta med. scand.*, 1959, 165, 241.
³ Hanngren, A., Hansson, E., Svartz, N., and Ullberg, S., *Acta med. scand.*, 1963, 173, 61, 391.

Potential Hazards for Diabetics

SIR,—This association drew attention in 1966¹⁻³ to a possible hazard in diabetic control for patients inadvertently changing from insulin prepared from one species to that of another. Hypoglycaemia on substituting porcine for bovine insulin was the original concern. Case reports were published⁴ and others have come to the attention of the British Diabetic Association, which has issued a caution through its quarterly journal.⁵

A meeting convened by the association and attended by representatives of the profession,

the Ministry of Health, insulin manufacturers, and pharmacists agreed an interim statement which included the following information supplied by the manufacturers on the present composition of their insulin. It is subject to the proviso that shortage of the appropriate pancreas may force manufacturers to add small quantities of pancreas of another species.

British Insulin Manufacturers.—A.B. Insulins Ltd.; Boots Pure Drug Company Ltd.; and Burroughs Wellcome & Co. All insulin preparations, including British I.Z.S.: 100% bovine.

Weddel Pharmaceuticals Ltd.—All insulin preparations 100% bovine.

Novo Industri A/S.—Semilente (I.Z.S. Amorphous) 100% porcine; Ultralente (I.Z.S. Crystalline) 100% bovine; Lente (30% Semilente, 70% Ultralente mixture); Actrapid 100% porcine; Rapitard 17% porcine and 83% bovine; and Soluble (unmodified) insulin and Portamine Zinc insulin: 70% bovine and 30% porcine.

A working party has been established to examine whether a definite clinical risk exists and advise on further investigations. Reports of individual cases in which change of species of origin of insulin appears to have caused either significant hypo- or hyperglycaemia would be welcome, and should be sent to Dr. Harry Keen (Secretary, Medical Advisory Committee, British Diabetic Association), Department of Medicine, Guy's Hospital Medical School, London Bridge, S.E.1.—We are, etc.,

D. M. HILL,

P. D. BEWSHER,

Joint Honorary Secretaries,
Medical and Scientific Section,
British Diabetic Association.

London S.E.5.

REFERENCES

- ¹ Young, B. A., and Kellock, T. D., *Brit. med. J.*, 1966, 2, 1010.
² Young, B. A., and Kellock, T. D., *Lancet*, 1966, 2, 910.
³ *Lancet*, 1966, 2, 897.
⁴ de Mowbray, R. R., *Lancet*, 1966, 2, 1027.
⁵ *Balance*, 1968, 12, 89.

Another Side-effect of the "Pill" ?

SIR,—About a year ago I drew attention to the effect of the oral contraceptive on the tissues supporting the teeth.¹ Personal communications have confirmed the similarity between the lesions of pregnancy and those of the patient taking the "pill."

Lindhe and Björn² have shown a statistical increase in the exudate from the gum tissues of 115 women studied. Softening of these periodontal tissues with severe gingivitis was reported by Lynn.³ His patient had been self-medicating with 30 mg. of an oral contraceptive containing norethynodrel and mestranol daily. The condition improved when the dose was reduced to 5 mg. and it disappeared when she stopped taking the pill altogether.

Little attention appears to have been directed to a further side-effect of the contraceptive tablet. It is well known that the joints of the pelvis become more relaxed during pregnancy and pseudopregnancy. The support of the teeth in the jaws is by a similar ligamentous sling. At a recent meeting of dentists in Manchester⁴ it was reported that patients who were undergoing a course of orthodontic treatment were suddenly placed at an advantage if they became pregnant. Teeth that had resisted the influence of