racial discrimination in the pejorative sense.

Prior to the establishment of this school—in Durban in 1951—non-White students were admitted to the two English-medium schools, in Johannesburg and Capetown, without hindrance by the Government. Although welcomed there by students and staff alike they were nevertheless handicapped by the fact that English was the mother tongue of few if any of them, and by the fact that, though they had passed the same entrance examination, their average level of attainment therein was below the average of their White fellow-students. This was not on account of innate mental inferiority, but because of the generally inferior quality of the (separate) non-White schools, and also because of the paucity of books and other cultural resources in their homes. Furthermore, whenever White patients were used as teaching material non-White students had to be excluded—not by fiat of the Medical Association of South Africa or even of the Government, but because of the views of the patients—and separate classes arranged for them: these included also White students, as non-White patients had no objection. "Coloured" patients (meaning, in South Africa, persons with both White and non-White genes), however, objected to being used as teaching material for African students. It was for this reason that Capetown could not and cannot admit African students, for in Capetown there are not enough purely African patients to provide enough, sufficiently varied clinical material. Now although the teachers in both medical schools took pains to ensure that the clinical teaching they gave to non-Whites was not inferior to that given to Whites it is understandable that it was difficult for the former to believe that this really was so, and resentful and inferiority complexes tended to develop among them.

All the disadvantages I have mentioned, real or not, were met by the establishment of the Durban Medical School, which indeed provided also several very real advantages. The restriction of entry to non-Whites made it possible to accept many applicants who in open competition with Whites would not have gained entry in schools open to all races. I have already explained the reason for this. But the lower standard of entry did not result in a lower standard of medical education. There were three guarantees against this. The first was that the new school was established by the long-standing University of Natal as its faculty of medicine, and the University Senate—the body controlling academic standards—would never have approved inferior curricula and the granting of inferior degrees. The second guarantee was that the South African Medical and Dental Council (counterpart of the G.M.C.) would not have registered persons holding qualifications inferior to the standard it has always maintained; and, as in South Africa it is illegal to practise at all if unregistered, even though not holding oneself out as registered, it would have been futile to establish a medical school whose qualification was not acceptable to the S.A.M.D.C. Last but not least, the M.A.S.A. would certainly have blacklisted appointments to the School had it not been sure that it would be fully up to standard.

From the founding of the School, the over-all curriculum has provided two post-highschool,

premedical years of study instead of the usual one. They include not only the study of the pre-medical sciences but also, in effect, a continuation of general education, notably in English and in the history of the development of Western culture. The various courses are given by specially chosen lecturers responsible to the heads of the relevant departments in the faculties of arts, science, and the social sciences. These faculties were represented on the medical faculty board and thus participated in planning the premedical curriculum. The extra year was at first resented by the students, but later they appreciated that it is to their advantage. By the time they enter the third year (the first medical year) of study their assimilative capacity is generally equal to that of White students at the same stage. Nearly all the African students are maintained by Government bursaries, and the University was successful in persuading the Government, from the outset, to cover seven years instead of the usual six.

There is no need to divide classes into racial groups, so that all students receive the same clinical training and opportunities. That they handle only non-White patients is advantageous, not detrimental, to their ultimate professional interests and competence. The pattern of disease, and the determinants of that pattern, are considerably different for non-Whites in South Africa from those for Whites. The number of White patients non-White graduates are likely to treat—there is neither legal barrier nor any ruling by the M.A.S.A. against their handling White patients who come to them voluntarily—is negligible; and in any case the medical needs of the non-White population, separated linguistically as well as geographically from most White doctors, are many times greater than those of the White.

Initially, at the Durban School, special attention was given to the training of students in social and preventive medicine, the importance of which among socially and economically emergent communities needs no explaining to readers of the *B.M.J.* Sadly, owing to the failure of the Government to continue to provide the facilities for this training (initially provided by the Rockefeller Foundation for five years), it has now fallen away very considerably although the spirit of it survives strongly in the remaining clinical departments.

In 1957 the Government declared an intention to remove the control of the Durban Medical School from the University of Natal (an autonomous body not in sympathy with the repressive aspects of apartheid) to that of the same Government department that already controlled all pre-university African education and, since 1958, has also controlled the university education of Africans other than medical students. Foremost among the allies of the University of Natal in its successful three-year fight against the Government's proposal was the M.A.S.A., and I believe its influence was decisive. Now, ten years later, it has been giving its full support to the dean of the School and others in their fight to secure abolition of racial differentiation in the scales of salaries paid to non-White doctors in Government-controlled posts.

Finally, it will surprise Dr. Mamujee and Dr. Boohene to learn that, with the specific approval of the Minister of Education in each case, non-Whites are still being admitted to the Johannesburg and Capetown schools, such as students whose homes are in these cities and for good reason cannot go to Durban. But White students whose homes are in Durban, but cannot for similar reasons go elsewhere and are willing to enter the Durban school are not permitted to do so: none of the places may be sacrificed to Whites. In this as in all else, the Durban Medical School discriminates in

favour of non-Whites. May I express the hope that the C.M.A. will take another look, and rectify the grave injustice inflicted, unwittingly, due to its imperfect knowledge of all relevant facts, upon a member loyal to its own basic objectives and, under very difficult circumstances, striving against racial discrimination in the medical field?—I am, etc.,

G. W. GALE.

Surbiton, Surrey.

SIR,—I refer to an extract from a letter (26 September, p. 774) by Dr. B. Lewis under the heading of "Race and Commonwealth." Dr. Lewis sees fit to make a number of remarks concerning the medical profession in Rhodesia. While I am the first to appreciate and respect the opinions of any individual I feel it is necessary to correct one or two errors of fact contained in his letter.

As dean of the faculty of medicine at the University of Rhodesia I can inform you that "among the first 16 graduates of the Medical School in Salisbury" there were two Rhodesian Africans who qualified as medical practitioners. In my experience in Rhodesia, amounting to over 20 years, practically all of which has been concerned with the practice of medicine among the African people, I have never seen an African rural hospital with a bed occupancy of 700% (this means 7 people in or around one bed). Undoubtedly African hospitals are, on occasions, overcrowded, and one has seen many patients being nursed on the floor, but I have yet to see a hospital as overcrowded as would appear to have been the experience of Dr. Lewis.

I note that Dr. Lewis remarks "when racial issues are as clear cut as in Southern Africa, not to protest is to acquiesce." As I said in my opening paragraph, I respect the right of any individual to have his own opinion, but I feel I must comment that there are those who have decided to continue to spend their professional life in the service of the people of Rhodesia irrespective of their colour. They have contributed in no small way to the rapidly decreasing mortality rate amongst the African people. The result is, for good or for bad, that the African population in Rhodesia has the highest natural increase rate in Africa—namely, 3.5% per annum. There are others, who presumably do not "acquiesce" and in "protest" have left the country. Such people, obviously, have no desire to serve the African—or anyone else—in Rhodesia.—I am, etc.,

W. FRASER ROSS.

University of Rhodesia,
Salisbury, Rhodesia.

Diabetic Ketoacidosis

SIR,—Dr. P. J. Watkins and others (10 October, p. 89) report that during the influenza epidemic of November 1969 to January 1970 an exceptionally large number of cases of diabetic ketoacidosis, associated in several instances with initial hypokalaemia, were admitted to the General Hospital, Birmingham. I would like to report a similar outbreak of ketoacidosis during this period at the St. Martin's Hospital, Bath, Somerset. One case is reported here in detail.

A previously well 55-year-old woman and her husband developed an influenza-like illness several days prior to admission. The wife had become confused on the day of admission (19 December 1969) and on arrival was stuporose, hypothermic (rectal temperature 90°F. (32.5°C.)), severely dehydrated, and overbreathing. Femoral pulse rate was 130/min. and brachial artery blood pressure was unrecordable. Generalized rhonchi were heard on auscultation of the chest. Bowel sounds were absent. An immediate E.C.G. showed ventricular tachycardia and, because of this, abnormal potassium metabolism was suspected from the onset. Treatment was commenced with intravenous normal saline and soluble insulin (40 units intravenously, 60 units intramuscularly). The initial blood biochemistry results became available approximately 40 minutes after admission and were: blood glucose 1500 mg./100 ml., serum potassium 1.6 mEq/l., serum bicarbonate 10.5 mEq/l., and blood urea 95 mg./100 ml. Sodium bicarbonate 300 mEq and potassium supplements were therefore added to the intravenous fluids. Four litres of fluid, including 50 mEq of potassium chloride, were given over the next three hours, by which time the E.C.G. monitor was showing sinus rhythm with T wave flattening throughout all leads. Serum potassium and bicarbonate were then 1.6 mEq/l. and 17 mEq/l., respectively, and systolic blood pressure was 60 mm. Hg. At the end of 24 hours of treatment with a total of 10 litres of intravenous fluid, including 150 mEq of potassium chloride, the serum potassium was 2.9 mEq/l. Bowel sounds had returned and systolic blood pressure was 110 mm. Hg. Despite a period of oliguria in the first 24 hours during which the blood urea rose to 200 mg./100 ml., renal function returned to normal and she eventually made an uneventful recovery. She was discharged home on 9 January 1970 on 28 units of Lente insulin daily.

At outpatient follow-up her insulin requirements gradually fell over the next four weeks, and on 12 February 1970 insulin was stopped and chlorpropamide 250 mg./day commenced. In the next month she gained a stone (6.3 kg.) in weight and the chlorpropamide was reduced to 250 mg. on alternate days. On 16 April 1970, since she had regained her former weight and there was no glycosuria, chlorpropamide was stopped. She has remained well since with no glycosuria. A blood sugar recorded recently two hours after lunch was 97 mg./100 ml.

This new case of diabetes is unusual because of both the initial severe hypokalaemia, associated with a bizarre electrocardiogram, and the eventual complete withdrawal of insulin and then chlorpropamide within a period of two months (5 September, p. 539). In the Birmingham General Hospital series hypokalaemia was given as a cause of death in three cases. As a result earlier addition of potassium chloride to the intravenous infusion was suggested. That this was done in the case reported here may well explain the successful outcome.

I would like to thank Dr. A. E. Tanser for permission to report this case.
—I am, etc.,

M. J. BOYCE.

Royal Hospital for Sick Children,
Bath

SIR,—Dr. P. J. Watkins and his colleagues (10 October, p. 89) emphasize the grave dangers of the uncommon initial hypokalaemia in patients with diabetic ketoacidosis. Of 36 patients admitted to this unit with ketoacidosis over the last seven years, four (11%) had initial (that is, pre-

treatment) serum potassiums of less than 3.6 mEq/l. Two of these patients died within a few hours of admission. A further five mEq/l. and 5.0 mEq/l. Three of this group died. In all five of these fatal cases patients had an initial value between 3.6 the cause of death could reasonably be attributed to the effect of hypokalaemia on the heart.

Recently, a 62-year-old man with bronchopneumonia was admitted to this unit. Previously unknown to be a diabetic he was found to be severely dehydrated with a blood sugar of 675 mg./100 ml. The plasma sodium was 113 mEq/l., plasma chloride 84 mEq/l., plasma potassium 3.4 mEq/l. pH 7.23, base deficit 9 mEq/l., standard bicarbonate 17.5 mEq/l. Ketosis was absent. Intravenous potassium chloride was given immediately. He received 40 mEq in the first two hours in a total volume of 4 litres (3 litres of isotonic saline and 1 litre of 5% dextrose in saline). Sodium bicarbonate was not given and he received 150 units of soluble insulin. Two and a half hours after treatment was commenced he had a fatal cardiac arrest. The serum potassium estimated half an hour before death was down to 2.5 mEq/l. It was probably even lower when the arrest occurred and may well have been the cause.

Clearly in these situations very large amounts of intravenous potassium may be needed to maintain the serum potassium at safe levels. When dealing with diabetic hyperglycaemic emergencies the serum potassium should be estimated as rapidly as possible (an efficient laboratory should be able to provide the result well within half an hour). If this is below 5.0 mEq/l., intravenous potassium supplements should be given immediately and in large amounts. At least 40 mEq/l. of infused fluid would appear to be indicated by the experience of Kunin and his colleagues.¹ A good deal more than this may be required. Frequent serum potassiums should be estimated (half-hourly) and therapy adjusted accordingly. Too rapid correction of acidosis with bicarbonate should be avoided. It is worth considering that continuous electrocardiographic monitoring with readily available cardiac resuscitation equipment may be of vital importance while hypokalaemia is present.²
I am, etc.,

A. GLYNNE.

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Glasgow C.4.

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- 1 Kunin, A. S., Surawicz, B., and Sims, E. A. H., *New England Journal of Medicine*, 1962, **266**, 228.
- 2 Abramson, E., and Arky, R., *Journal of the American Medical Association*, 1966, **196**, 401.

Combined Triiodothyronine and Thyroxine

SIR,—The results of the trial of combined triiodothyronine and thyroxine (17 October, p. 145) are not unexpected, but they do not necessarily support the conclusions of the authors.

Hypothyroid patients were changed from their maintenance treatment with thyroxine to a combined treatment regimen of thyroxine and triiodothyronine which had a metabolic activity 40% greater than their maintenance treatment (from 0.1 mg. of L-thyroxine to 0.08 mg. L-thyroxine and 0.02

L-triiodothyronine—the latter having metabolic activity about three times greater and thus producing total equivalent activity of $0.08 + 3 \times 0.02 = 0.14$ mg. L-thyroxine). Not unnaturally the patients had symptoms with this increased dose, such as palpitations, nervousness, tremor, and perspiration.

This clinical trial affords no information with regard to the comparable effects of thyroxine and the combined preparation when given in equivalent dosage. The authors state that the dosage of combined preparation selected by them made unavoidable this discrepancy of dosage. This problem could have been avoided by using 50/15 thyroxine/triiodothyronine ratio used by Mr. Selwyn Taylor and colleagues (2 May, p. 270).

Finally, since this study is a controlled clinical trial, is there any statistical significance to the patients' preference? (42 no preference, 16 combined treatment, 29 thyroxine).—I am, etc.,

J. A. WEAVER.

Royal Victoria Hospital,
Belfast.

Computer-held Clinical Record System

SIR,—Mr. L. J. Opit and Dr. F. J. Woodroffe (10 October, pp. 76 and 82) are refreshingly honest in admitting the system's serious shortcomings. However, the very nature of these suggests, at least to me, that the careful and detailed planning of the software was not supported by adequate general operational research. The degree of customer resistance could have been foreseen, and simply serves to confirm the truism that for busy doctors time is always short and simplicity of information-handling of paramount importance.

By stating that "we believe that the experience at King's College Hospital has shown that deliberate instruction in medical recording to students might well be a necessary prerequisite to the successful installation of computer record keeping" the authors seem to be in danger of making the cardinal error of trying to adapt the operator and his methods to the machine instead of vice versa. What really matters is that students are taught to make good decisions—"good" in the sense of their resulting in benefit to the patients concerned.

The last sentence of the second paper remarks "... a determined effort must be made to understand the structure and purpose of clinical records, and it may well be that this is the right starting-point for a project to store the clinical record on a computer." This really does startle me; firstly because the project described seems an unduly expensive and circuitous means of drawing such an obvious and basic conclusion, and secondly because such a determined effort has already recently been made.¹—I am, etc.,

J. H. MITCHELL.

Caithness Central Hospital,
Wick, Caithness.

REFERENCE

- 1 Mitchell, J. H., *A New Look at Hospital Case Records*. London, Lewis, 1969.

Intal-Compound

SIR,—Why do the manufacturers of Intal (disodium cromoglycate) persist in also manufacturing Intal-Co, the mixture of the