Correspondence

Because of the present high cost of producing the Journal, and the great pressure on our space, correspondents are asked to keep their letters short.

Anatomical Nomenclature

SIR,—At the International Congress of Anatomists held at Oxford in the summer of 1950 it was resolved to set up a committee, comprising three members from each of the countries (or groups of countries) represented, to make recommendations to the Congress to be held in 1955 in France for the establishment of an agreed international anatomical nomenclature.

Hitherto there has not been an agreed international nomenclature. The *Basel Nomina Anatomica* (1895), though now adopted by most countries, was essentially the work of a small committee of exceptionally able German anatomists, and the fact that one British and one Italian anatomist were co-opted during its preparation did not make the B.N.A. an agreed international nomenclature. In 1933 the Anatomical Society of Great Britain and Ireland approved the revision of the B.N.A. carried out by British anatomists with the intention of bringing it up to date, and this revision has been in use in the anatomy departments of universities and medical schools in this country for nearly 20 years. The corresponding German society (Deutscher Anatomischer Gesellschaft), working quite independently, published its own revision of the B.N.A. in 1936. Since then advances in knowledge, particularly in the section of neurology, have made it desirable for the whole position to be reviewed with the authority attached to an international committee of anatomists.

With the sympathetic and material support of Unesco and its appropriate branch, the Council for the Coordination of International Congresses of Medical Sciences, it proved possible to hold a meeting in London of one duly accredited representative from each country (or group of countries) concerned. This meeting was held in the week May 26 to 31, when representatives were present from France (representing Belgium and French-speaking Swiss anatomists), Germany (representing Austrian and German-speaking Swiss anatomists), Great Britain (representing British, Irish, and Commonwealth anatomists), Holland, Italy, Scandinavia, Spain, and Portugal (including the Spanish and Portuguese-speaking countries of South America), and the U.S.A. An invitation had been issued to the anatomists of the U.S.S.R., but no representative attended.

The principal object of this meeting was to determine whether the proposal to attempt to establish an agreed international anatomical nomenclature at the present time was in fact practicable, and the matters discussed were to a very large extent matters of principle. Throughout all the six sessions that were held there was an atmosphere of cordiality and friendship which was not only encouraging but expressed itself in a willingness to compromise whenever compromise could be considered reasonable and justifiable. As a result the committee came to the conclusion that the establishment of an agreed nomenclature was a practicable proposition, and it was decided to proceed therewith.

As a first step it was agreed unanimously that the B.N.A. (1895) should form the basis for the new nomenclature, and that the changes to be effected in it should be restricted as far as possible to those considered essential. The principles which had been adopted in the B.N.A. were fully discussed and, with a number of minor modifications, were unanimously adopted. Further, it was unanimously agreed that each country should be at liberty to translate the official term, which would be in Latin, into its own vernacular for teaching purposes, if it desired to do so, but the committee was very strongly of the opinion that in scientific publications, in anatomical or other medical journals, it was most desirable that the official Latin terms should be used—especially in the titles—to avoid ambiguity or uncertainty. The detailed work will be carried out by a series of subcommittees, and it was agreed to make a special effort to submit a report to the International Congress of Anatomists to be held in France in 1955.

While the committee felt that the revision of anatomical nomenclature was properly the responsibility of anatomists, they were well aware that it was most important to obtain the sympathetic co-operation of all who are actively concerned with the teaching of medical students in any

branches of medical science, for it would patently be absurd to lay down for anatomists that each structure in the body should be designated by one term only if no attempt were made to persuade physiologists, pathologists, clinicians, and others concerned to use the same term. It is therefore hoped that those who are interested in this matter will communicate their views to the writer and he will gladly undertake to put them before the appropriate committee.

In an endeavour to make known as widely as possible that this revision of the B.N.A. will be an agreed international anatomical nomenclature in actual fact, each member of the committee has undertaken to make a similar communication to this in the responsible medical journal or journals in his own country and to forward such communications as he may receive to the writer.

Anatomists are most anxious to avoid antagonizing any of their colleagues, and they earnestly seek their co-operation both now and in the future. The B.N.A. (1895) has been gradually adopted in this country, and the aim of the committee is to restrict changes to be effected in it to the minimum, while recognizing that in some respects, and especially in the central nervous system, the B.N.A. is outdated. It is apparent that such changes as it may prove necessary to introduce will take time to become absorbed into general medical terminology, but such terms as "dorsal vertebrae, Poupart's ligament, musculo-spiral nerve, and internal lateral ligament of the knee-joint" have in the space of 40 years almost entirely been replaced in the country by the terms "thoracic vertebrae, inguinal ligament, radial nerve, and medial ligament of the knee-joint," respectively.—I am, etc.,

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T. B. JOHNSTON.

Sickle-cell Trait in Africans

SIR,—We have just seen the article by Drs. D. B. Jelliffe and John Humphreys (February 23, p. 405) and your leading article (p. 426) on sickle-cell trait.

Surely, Sir, it is incorrect to say that sickle-cell anaemia is absent or rare in the negroes of Africa. Numerous cases have been reported from the Belgian Congo (Parent, 1950; Van den Bergh and Janssen, 1950; Lambotte-Legrand, J. and C., 1951), from South Africa (Grek and Findlay, 1951), and from the West Coast of Africa (Edington, 1951). We have reported cases from Kenya (Foy, Kondi, and Brass, 1951). It is our opinion that many more will be found once they are looked for and the differentiation between the trait and the anaemia established as a routine procedure in surveys.

We do not think that the presence of foetal haemoglobin in babies is likely to affect those tests for sickling which depend upon the use of powerful reducing agents.

We have recently completed a survey of anaemias and sickling in the various negro tribes of Portuguese East Africa. In the north of the territory there are two tribes, the Makuas and the Makondas, which have sickling rates of 38% and 40% respectively. In 210 examinations from these two tribes we found 82 cases that show sickling, and, of these, nine had sickle-cell anaemia. Of these nine, eight were infants under 2 years of age; there was one adult aged 18 years (Foy *et al.*, in press). Similar findings occur in the Belgian Congo and the U.S.A., and we cannot understand the low incidence of sickle-cell anaemia that Dr. Jelliffe reported from West Africa, where sickling rates vary from 15 to 30%.

On physicochemical as well as on genetical grounds it is extraordinary that sickle-cell anaemia should be absent or rare in communities that have high sickling rates (Africa) and yet abundant in communities that have low sickling rates, such as the U.S. We cannot agree with the suggestion that this may be due to admixture with Caucasian blood, since this is not borne out by the incidence of sickle-cell anaemia in those African territories we have investigated.

That sickle-cell anaemia occurs in individuals only one of whose parents has the trait, or the anaemia, as we reported from Greece (Foy, Kondi, and Alexandrides, 1951), can perhaps now be accounted for by the findings of Kaplan *et al.* (1951) of a new type of haemoglobin that they have provisionally named haemoglobin III.

Elsewhere we have shown (Foy and Kondi, 1951) that sickle-cell anaemia can be differentiated from sickle-cell trait by at least two simple tests which are quite capable of being used in the field. They are:

- (i) The development of long filamentous processes on the red cells after 12 hours or less at 37° C. in cases of sickle-cell anaemia and the absence of such processes in sickle-cell trait.
- (ii) The finding of sickle cells in direct smears from peripheral blood.

Method (i) has now been used in the U.S.A. (Kaplan *et al.*, 1951) and the Belgian Congo. We should be surprised if, with these methods in use, sickle-cell anaemia should continue to elude diagnosis.

As in Kenya, so also in the Belgian Congo and Portuguese East Africa, the bulk of the cases of sickle-cell anaemia are found in infants and young children. From our experiences in Kenya and Portuguese East Africa we think that sickle-cell anaemia is not only an important cause of death *per se*, but also an important contributory cause when associated with other diseases. Of the three cases of sickle-cell anaemia reported by us in 1951, all are now dead.

Regarding the question of death rates and the causes of death in African infants, it is safe to say that extremely little is known about this subject. Africa is littered with the graves of babies the cause of whose death can never be guessed at. They are buried in the bush, under the floors of their huts, and in numerous other outlandish places. It is also safe to say that outside the urban areas—and very often within them too—births and deaths are frequently not even known to medical officers. Doctors working overseas, especially in Africa, are generally far too overworked to be able to do necropsies on anything but an infinitesimal number of infants, and all too few of them have the facilities to be able to decide whether the case has died from anaemia, let alone sickle-cell anaemia. Our own experience, and that of others working in Africa, is that anaemia is very common among African infants; how much of this is sickle cell is a question that only time and further work can decide. For all we know there may be a veritable "slaughter of the innocents" (Lehmann, 1952) from sickle-cell anaemia, which might easily be quite unknown.

Until reliable figures are forthcoming regarding the causes of death among African infants it will be impossible to say just how important sickle-cell anaemia is as a cause of infant mortality.—We are, etc.,

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SIR,—We have only to-day had the opportunity of reading the stimulating criticisms by Dr. J. M. Vandepitte (April 26, p. 920) and Drs. Foy and Kondi of our article entitled "The Sickle-cell Trait in Western Nigeria" (February 23, p. 405).

It would seem that there are at the moment two views as to the commonness or otherwise of sickle-cell anaemia in tropical Africa. On one hand the Lambotte-Legrands and Vandepitte in the Belgian Congo, together with Foy and his associates in Kenya (in *E. Afr. med. J.*), maintain that the disease is very common, occurring especially in infancy and having a high mortality. On the other, in Ibadan this has not been our experience—although we have been very sickle-cell conscious for the past two years—and the weight of evidence from other workers in trans-Saharan Africa would seem to support our findings. Notably the studies of Lehmann and Raper in Uganda, Beet in Northern Rhodesia, and Mackey and Tanganyika may be cited as typical.

In Ibadan during the last 18 months only 22 cases of sickle-cell anaemia have been diagnosed in children. The majority of these were of the 5–10-year age group, although two were below 18 months and two were under 1 year. In a town the size of Ibadan, with a population estimated at about half a million, and with 23.7% trait carriers, one would expect to see cases of the

anaemia in large numbers if the heterozygous-homozygous theory were correct. If the views of Drs. Lambotte-Legrands and Dr. Vandepitte are correct we must be missing hundreds of cases a year. While it is our opinion that some examples of the anaemia must undoubtedly be overlooked, that such large numbers are not noticed seems to us unlikely.

The Belgian Congo workers seem to have found many of their cases during the first 18 months of life. This is a period of great diagnostic difficulty in African children, at least in Ibadan, when chronic malaria (with hepato-splenomegaly, severe anaemia, and icterus or subicterus) and malnutrition (with hepatomegaly and anaemia) are the rule. Under these circumstances an incontrovertible diagnosis of sickle-cell anaemia under African laboratory conditions is, in our opinion, a matter of considerable difficulty. The Lambotte-Legrands particularly stress the commonness of swellings of the digits, the hands, and the feet ("gonflements") as being seen "in the majority of cases." This form of dactylitis, admirably illustrated in their monograph on this subject, could hardly have been missed in Ibadan, whereas it can be categorically stated that the condition is only very rarely seen. Two examples have been noted in the last six months. One could certainly be attributed to sickle-cell anaemia, while the other was felt to be due to congenital syphilis.

In our opinion the Lambotte-Legrands have performed a valuable service by refocusing attention on the possibility of sickle-cell anaemia occurring in very young infants and by re-emphasizing that dactylitis can occur in this disease, a fact long appreciated by American paediatricians in the Southern States.

In answer to Drs. Foy and Kondi, it is not our contention that sickle-cell anaemia is absent among the negro population of tropical Africa: in fact we feel that, with the increased interest in this disease complex and with slowly improving laboratory and medical facilities, many more cases will be recorded in the near future. Nevertheless it has been our experience in Ibadan that examples of sickle-cell anaemia are definitely uncommon, especially when considering the huge pool of sicklaemics present in the area. The contrast between the incidence in Western Nigeria and in the Southern States seemed quite striking to one of us who worked for a while in Louisiana last year.

Much needed in this complicated problem is a reliable *field* test to differentiate the anaemia from the trait—obviously such elaborate methods as the survival of transfused red blood corpuscles, etc., are out of the question. In this context Dr. Foy and his co-workers in Nairobi have made two very important suggestions, which, if found to be absolutely reliable, may simplify matters. First, they consider that the morphology of the actual sickled cells is diagnostic—the long filamentous forms being, in their opinion, pathognomonic of the anaemia. Secondly, they are of the opinion that the presence of sickled cells in ordinary stained thin blood films is indicative of the anaemia as opposed to the trait.

Since reading of this work we have been on the watch for these phenomena, and we would agree that in our Ibadan cases the filamentous or "trypanosome-like" forms are characteristic of the anaemia while the compact regular semi-lunar sickle cells are characteristic of the trait. We have, however, seen cases of anaemia without definite filament formation, but with bizarre holly-leaf forms predominating. It must be noted that we are in the habit of using the simple *in vitro* method of Scriver and Waugh. Possibly if we had used one of the "rapid" techniques with a chemical or bacterial reducing agent filament production might have occurred in all cases of anaemia. If this test is statistically proved to be reliable, it will be of the utmost value and will solve the problem of differentiating sickle-cell anaemia from sicklaemia.

That the infant mortality in tropical Africa is appallingly high is a commonplace, and certainly the vast majority of deaths are not investigated adequately. Nevertheless it is not necessary to invoke sickle-cell anaemia as an important cause. It is more likely, in our opinion, that gastro-enteritis, respiratory tract infection, and other diseases associated with filth, poverty, and ignorance are to blame. Similar infant mortalities occur in backward tropical countries outside Africa. That anaemia is common in African infants in the first years of life is indubitable. In Ibadan, one would assess the average haemoglobin as being between 50 and 60% in children between the ages of 4 months and 2 years. The aetiology is complex, numerous factors taking part, including prematurity (the average Yoruba birth weight in Ibadan is 6 lb. 5 oz. (2.86 kg.)), and almost complete lack of iron in the food, universal chronic malaria, etc.

Although we realize very well that the complicated and overlapping problems of African infancy are only beginning