Original Communications.

BABESIA OR PIROPLASMA: A REPLY TO DR. LEIPER.

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DR. LEIPER, in the JOURNAL OF TROPICAL MEDICINE AND HYGIENE, January 1, 1915, has pointed out that in suggesting that Piroplasma was the correct name for the organisms often termed Babesia, it had escaped our recollection that the nomenclatures of botany and zoology are quite independent.

We had not intended replying to this, nor have we the slightest intention of entering upon a polemic with regard to the above nomenclature, but as Dr. Leiper's words have been quoted in other journals, and may possibly give rise to a wrong impression, we feel compelled to make these few final remarks on the subject.

There is no one who will dispute that a worm is an animal and that a moss is a plant, but with regard to the Protista the matter is quite different, and one set of authorities may declare that a given organism is an animal and therefore comes under the rules of zoological nomenclature, while another equally weighty set of authorities may maintain that it is a plant, and that it comes under the rules of botanical nomenclature.

This point can be illustrated by one of the terms used for the Piroplasmata. Babès, in 1888, gave the organism which he discovered the name of *Hæmatococcus* or blood coccus (*C.R. Acad. Sci.*, Paris, vol. cvii, p. 692), but unfortunately this name has not been adopted because Agardh, in 1828 ("Icones Algar. Europ."), had already given the same name to another organism.

By general consensus of opinion Babès "coccus" is considered to be an animal, but what is Agardh's organism? By one set of authorities it is considered to be an Alga and, if so, then the correct name for the organism we call *Piroplasma* or *Babesia* would be *Hæmatococcus*. On the other hand, equally good authorities look upon it as a protozoal organism, and we have it on the authority of a distinguished protozoologist that he does not envy the task of the investigator who would try to settle this point.

By general usage the coccus of Babès has been deleted because of Agardh's coccus, and, therefore, there is no evident reason why the same should not happen to the word Babesia, especially as Saccardo's description leaves it, in our opinion, open to doubt as to the true nature of Trevisan's *Babesia xanthopyretica* found in yellow fever, and presumably the type species, which may or may not be a streptococcus (Filamentis undulato-flexuosis 0·6-0·8 μ diam. longissimis), and apparently no one has, as yet, seen the true causal organism of yellow fever.

We readily admit that the nomenclature of the organism called Piroplasma is extremely confused, and that very long papers could be written on the subject, but we still maintain that as far as the evidence at present goes, the correct term is "Piroplasma," though it is possible that further research might give preference to "Pirosoma."

In order that the reader may be able to judge for himself we quote, in its original French, the zoological rule to which Dr. Leiper refers, and which reads as follows:—

"Article Premier: La nomenclature zoologique est indépendante de la nomenclature botanique, en ce sens qu'un nom d'animal ne peut être rejeté pour ce seul motif qu'il est identique à un nom de plante. Mais, si un être est transporté du règne végétal dans le règne animal, ses noms botaniques sont incorporés à la nomenclature zoologique avec tous leurs droits à la priorité. Si un être est transporté du règne animal dans le règne végétal, ses noms zoologiques sont maintenus dans la nomenclature zoologique.

"Recomm.: On doit éviter d'employer, en zoologie, des noms génériques existant déjà en botanique."

With reference to the confusion in the nomenclature of the Protista there is an excellent botanical rule which the zoologists would do well to copy, and this reads as follows:—

"Art. 4. The essential points in nomenclature are: (1) To aim at fixity of names; (2) to avoid or to reject the use of forms and names which may cause error or ambiguity or *throw science into confusion*."

It will be observed that this extremely wise rule uses the term "science" and not the term "botany."

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NOTE ON "BOOMERANG LEG."

A BONE DISEASE OCCURRING AMONGST AUSTRALIAN ABORIGINALS.

By A. BREINL and H. PRIESTLEY.
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ERNEST BLACK, as quoted by Castellani and Chalmers[1] drew attention to a disease occurring amongst natives in Western Australia, the Northern Territory, and the Torres Straits Islands, characterized by a bowing forward of the bones of the legs.

Sporadic cases were observed by us amongst the natives of North Queensland and of the western parts of British New Guinea.

[1] Castellani and Chalmers, "Manual of Tropical Medicine," London, 1913.

The disease has for some time been known as "boomerang leg," on account of the similarity of the shape of the legs to that of a boomerang. It affects young natives of both sexes and the resulting deformity persists throughout their life, and in every case seen both legs were affected.

The onset seems to be gradual; the children complain at first of pains in the shins, sufficiently severe to prevent them from walking. The skin over the tibia is tender to pressure, but there is no swelling noticeable. These pains become less severe in the course of time, the children begin to use their legs again, and the tibiæ and fibulæ bend forward gradually and assume the characteristic shape. In consequence of this the centre of gravity of the body is displaced forward, the patient becomes flat-footed, and the gait shuffling. The deformed bones gradually increase in thickness, but retain their altered shape.

We were fortunate enough to obtain an X-ray photograph of the leg of an affected Queensland aboriginal and the bones after his death.

The native was about 40 years of age (fig. 1) and had developed the disease in his early youth. He died from pneumonia, and the *post-mortem* did not reveal any obvious signs of syphilis, tuberculosis, or rickets. Both tibiæ and fibulæ were markedly curved, with the convexity forwards and the point of maximum curvature lay between the upper and middle thirds. The tibia was heavier than normal, greatly increased in diameter, the crista completely obliterated, and the bone almost circular on cross-sections at the middle of the shaft (cf. fig. 2, A). The fibula did not show any changes beyond a corresponding forward curvature.

A longitudinal section through the middle of the tibia (fig. 2, B) shows a complete alteration of the structure of the bone. The compact substance is greatly increased in thickness over the greater part of the shaft and is slightly decreased at both extremities. It is much denser in structure than normal and is of ivory-like appearance. Almost the whole marrow space is filled by compact bony tissue, only here and there are remnants of greatly thickened cancellous tissue. The lamellar structure of both ends of the bone has become completely obliterated, being transformed into compact bony substance.

The X-ray picture taken during life shows the same transformation (cf. fig. 3).

The history of the disease in conjunction with the appearance of the bone suggests that "boomerang leg" is the result of a chronic osteomyelitis of both tibiæ. It takes, at first, the form of a rarefying osteitis, corresponding clinically to the early and painful stages of the disease and giving rise to the softening of the bone and the characteristic deformity. This phase is followed later by a condensing osteitis, where the increased activity of the osteoblasts leads to a progressive thickening of the lamellæ, to bony metaplasia of the fibrosed marrow, and to the reduction of the marrow spaces.

A simultaneous progressive periosteal new development causes the increase in the thickness of the shaft.

The etiology of "boomerang leg" is unknown, but syphilis and tuberculosis can be excluded.

FLAGELLATE FORMS OF *LEISHMANIA DONOVANI* IN THE TISSUES OF AN EXPERIMENTALLY INFECTED DOG.

By C. M. Wenyon.

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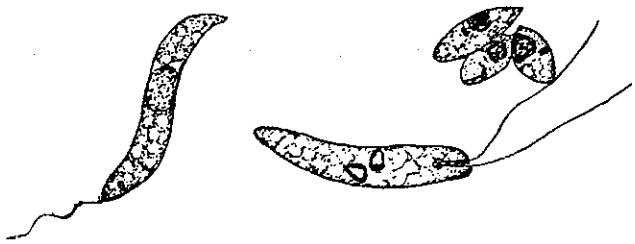
In 1911 Escomel first recorded his discovery of flagellated or leptomonas forms of leishmania in smears made from cases of South American dermal leishmaniasis. Since that time such forms have been noted by La Cava in cases of Oriental sore in Italy, and by Monge again in the South American disease. Though search has been constantly made for such flagellate forms in cases of kala-azar no one has been successful in demonstrating their presence in the blood or tissues from cases of this disease. It seems worth while, therefore, to place on record the following observations.

In September, 1913, I inoculated a dog with spleen emulsion of a man who died in the Albert Dock Hospital from kala-azar contracted in Calcutta. The dog became infected and I have maintained the strain of leishmania by sub-inoculation in dogs. In all there have been up to the present five passages in dogs. On July 29 of this year I



inoculated a young dog intraperitoneally with emulsion of the spleen of a dog of the fourth passage. A month after the inoculation the dog showed signs of illness, and was evidently dying on September 4. It was accordingly killed and an examination made immediately after death. Leishmania were fairly numerous in the bone-marrow and there were a good number of large cells with cytoplasm packed with parasites. As is usual in dogs, the leishmania showed a much greater variation in form and size than they do in men. Frequently there occur what are, comparatively speaking, very large forms, as much as 8 or 9 microns in longest diameter.

From this it would appear that Yakimoff and Schokhor (*Bull. Soc. Path. Exot.*, March, 1914) are hardly justified in separating the *Leishmania tropica* of Turkestan into several varieties, according to the size of the parasites. A similar variation in the size of the leishmania I noted in the natural canine kala-azar of dogs in Malta.

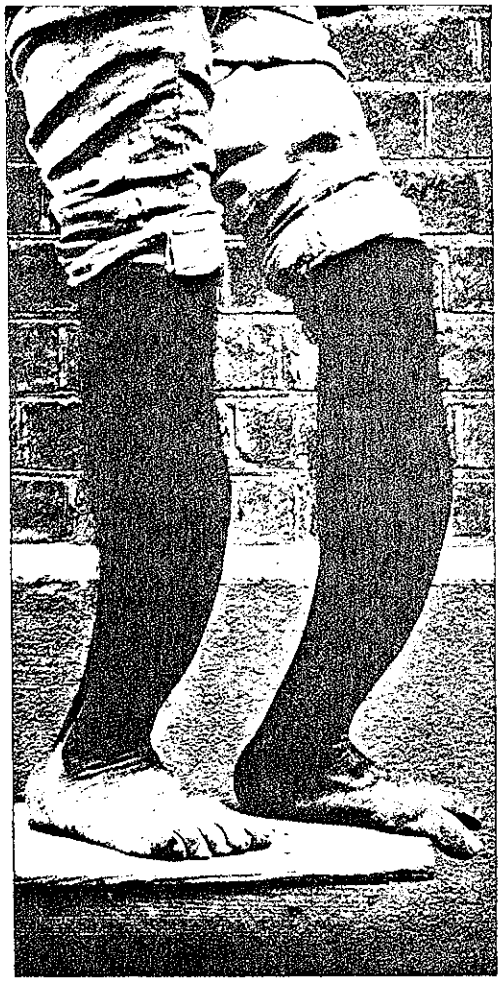


FIG. 1.

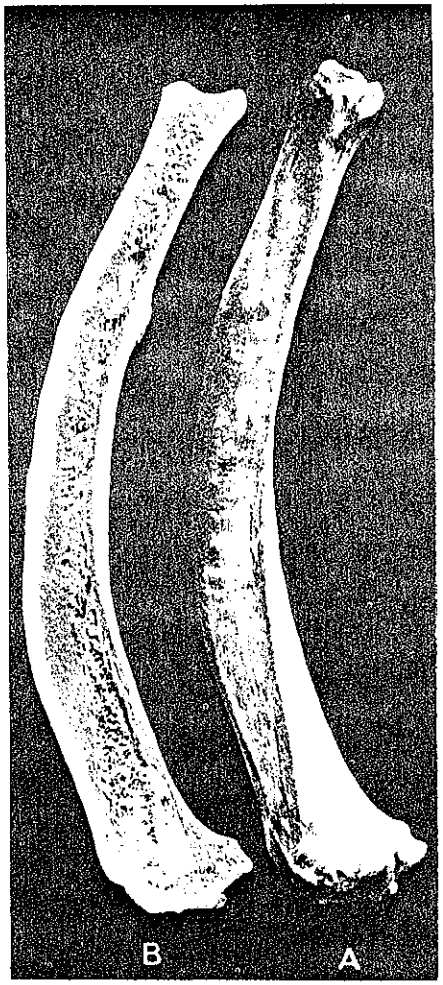


FIG. 2.

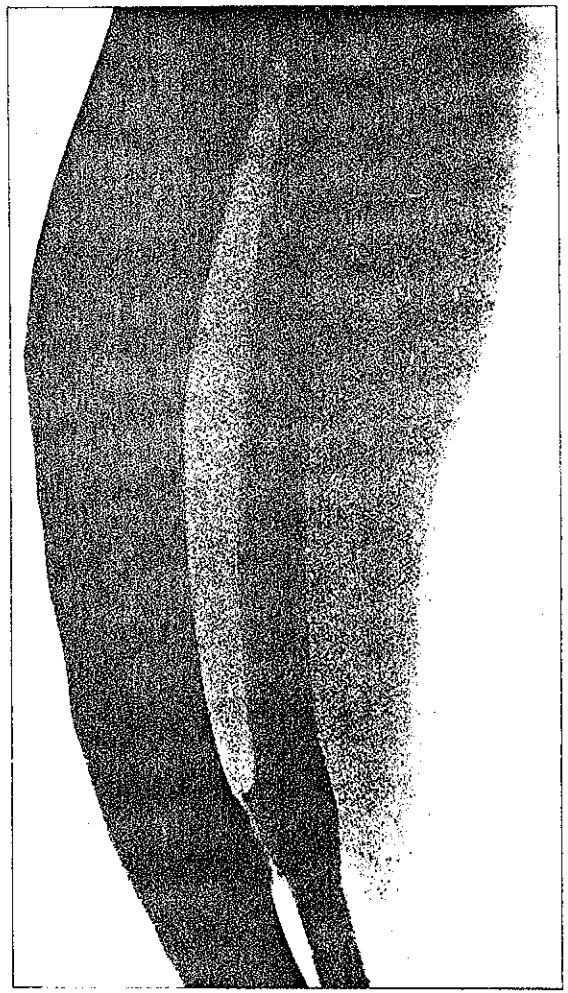


FIG. 3.

To illustrate paper, "Note on 'Boomerang Leg': a Bone Disease occurring amongst Australian Aboriginals," by A. BREINL and H. PRIESTLEY.

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