Future of the ICZN

from a Correspondent

THE International Commission on Zoological Nomenclature was set up by the Third International Congress of Zoology in 1895. It must report to each session of the congress on its performance of its duties, which are: (1) to adjudicate on questions of zoological nomenclature in accordance with and in interpretation of the International Code of Zoological Nomenclature; (2) to maintain and publish the Official List of, and the Official Indexes of Rejected and Invalid, Names and Works in Zoological Nomenclature; and (3) to adopt provisional alterations to and modifications of the International Code, which must be submitted to congress for ratification.

The demise of the Congress of Zoology in its original form—the seventeenth and final session was held in Monaco from September 24 to 30, 1972—made it necessary for steps to be taken to ensure that the commission continues to perform its functions on behalf of the zoological community. Changes were needed in those parts of the code and the constitution of the commission that prescribe its duties, functions and powers, and prescribe its relationship with the congress. Such changes could only be properly made if they were presented to the congress by the commission through the Section on Nomenclature of the congress. The purpose of this note is to explain the steps taken by the congress.

The most important step was to provide for the transfer to some other international body of zoologists of the authority over the commission hitherto exercised by the congress. There is not, however, any congress in existence which presents the same degree of international and interdisciplinary scope as the former International Congress of Zoology. Indeed, the general tendency among congresses seems to be for them to become more numerous, smaller and more restricted in scope. The congress dealt with this problem by amending Article 76 of the International Code to allow the congress to delegate any of its powers and functions in relation to the commission and the code, including the power of delegation, to another international body of zoologists. By this device, if the body to whom the congress delegated its powers in the first instance should find itself either unable or unwilling to continue to exercise those powers and functions, it could (given the concurrence of the commission) delegate them in turn to some other body. The congress resolved to delegate those powers and functions in the first instance to the International Union of Biological Sciences (subject to a favourable response by the union at its Assembly in Bergen in 1973).

The International Commission recognizes that IUBS does not offer a forum comparable with that provided by the old congress for discussions between the commission and the zoological community on matters concerning zoological nomenclature, and the commission will seek opportunities to meet with zoologists as the need appears. Meanwhile, it is hoped that IUBS will be able to function effectively where the formal responsibilities of the old congress are concerned. These are of two principal kinds. The first concerns the election of members to the commission. Here, the accusation that the commission is a self-perpetuating body has been met by providing that a commissioner whose term of service comes to an end cannot normally be immediately re-elected (as was possible hitherto). The second concerns the procedures for making changes in the code. In future, proposals to this end will be considered to be important changes unless the commission, by a two-thirds majority, decides that a given proposal is intended merely to clarify an existing provision; in such a case it may, by a further two-thirds majority vote, adopt a declaration to the required effect. Proposals for major changes must be published in the *Bulletin of Zoological Nomenclature* for at least a year before they are voted on. A two-thirds majority vote is then required for the proposal to be recommended for ratification by the body exercising delegated authority over the commission. The commission's power to amend the code is thus more limited, and the procedure for doing so made more open, than has been the case.

Precise details of the new and amended provisions in the code are now in the press in the *Bulletin*, as are also details of the measures taken by the congress to deal with the controversy surrounding Article 23(b) of the code (Limitation of the Law of Priority).

Changes in Thin Filaments During Contraction

from a Correspondent

IT is known that when a muscle contracts there are structural changes in the thick filaments. These changes are usually interpreted as axial and/or azimuthal movements of the myosin heads or crossbridges which project in a helical array from the surface of the thick filaments, and there is some evidence that these crossbridges interact with the thin filaments during contraction. Vibert *et al.* now report that alterations occur in the structure of thin filaments during contraction, and these changes are possibly related to the mechanism of regulation of contractile activity (*J. Mol. Biol.*, **71**, 757; 1972).

Two smooth muscles—the anterior byssus retractor muscle (ABRM) of a mollusc and the taenia coli of the guinea-pig—and a striated muscle from frog were studied using an X-ray diffraction method. Small-angle X-ray diffraction patterns from the muscles show layer-lines, the spacings of which indicate that they originate from the thin filaments. The key observation is that the relative intensities of these reflexions differ depending on whether the muscles are resting, actively contracting or in rigor. In particular it is demonstrated that during contraction the second thin filament layer-line is more intense than when the muscle is resting. This effect is seen most clearly with ABRM, but the other muscles show similar features. Frog striated muscle in rigor also gives an intense second layer-line, and Vibert *et al.* demonstrate that this is so even when the muscle is stretched so that the thin filaments no longer interdigitate between the thick filaments.

What structural changes are indicated by these intensity changes? The position of the reflexions suggests that the change occurs in the thin filament, and Vibert *et al.* suggest that it is unlikely to be caused by any alteration in the shape of a globular actin monomer because the helical parameters of the thin filaments remain unaltered throughout. The most likely cause is a shift in the position of the tropomyosin/troponin complex which is located in the grooves of the double helix of F-actin. If the tropomyosin/troponin moved from a less to a more central position in the groove this would account for the observed intensity changes when the muscle went from the resting to the contracting or rigor states.

The question is whether this move is caused by attachment of the crossbridges to the actin monomers or whether it precedes this attachment. The data from frog muscle in rigor stretched beyond filament overlap point to the second possibility; it seems that the presence of myosin is not required. Perhaps the movement takes place when the troponin binds calcium and the shift is a way of allowing actomyosin interaction to take place. In ABRM, however, the regulatory calcium is bound to the thick filaments and the thin filaments do not contain troponin, though tropomyosin is present. Thus in ABRM the shift of tropomyosin may be caused by attachment of the crossbridges.