The third meeting of the 2019/ 2020 session was held in Lecture Theatre, Department of Anatomy, The University of Glasgow on Tuesday 3rd December 2019 commencing at 7.15pm. Apologies were received from 3 members. The minutes of the previous meeting, published online were approved.

The President, Dr Will McLean, welcomed the members and guests to the meeting.

The President started the meeting with AOCB: the President reminded members that to get CPD for the meetings they have to sign in giving their contact email address, without this CPD certificates cannot be sent out. An email will be sent out following the meeting and members were asked to follow the instructions contained in to generate individual CPD certificates.

He asked that any member wishing to propose another member for Honorary Membership status to contact the Secretary or any of the Council members with their nominee.

He reminded the audience that the Annual Dinner will be held on **Saturday 22nd February 2020** in the RCPS Glasgow. The cost will be £65. Dress code: Black Tie. There are restricted numbers. The proceedings of the raffle are going to GOS.

He then presented the Glasgow Odontological Society Prizes. The Vocational Trainee Prize winner was Mr Iain Ogilvie. This prize is of £200 and is awarded to the VDP who presented the best case report as judged by the prize-winners Vocational Dental Advisors. The Undergraduate Prize winner was Ms Seren McLean. This prize is of £200 and is awarded for the best case presentation in BDS fourth year.

The President then introduced the speaker Professor Matt Dalby and asked him to give his presentation ***“Nanoscale control of mesenchymal stem cells for bone applications”***

Professor Dalby thanked the President for his invitation and the members for attending the meeting. He started by explaining that cells understand their environment and how to control it. They look for proteins in the cell matrix and attach to them via receptors. Cells have integrin proteins which detect amino acid motifs (sequence pattern of amino acids that is widespread and has, or is conjectured to have, a biological significance) and start a cascade effect which allows cell signalling. How mesenchymal stem cells (*msc*) adhere determines their function. He illustrated this using the osteoblast and adipocyte as examples. ‘Stacking and pulling’ of actin and myosin is important for function.

Professor Dalby described how he became interested in nanoscale topography. He described how nanoscale topography alone can control osteospecific differentiation of *msc* and related this to dental implant surface research – ‘slight’ disorder will turn on bone formation. He described his research into osteoinductive materials starting with *nacre* (mother of pearl) used by ancient Mayans and related that to implant surface.

He discussed the practical applications of this and described the cases he had been involved with at the School of Vetinary Medicine. He reminded the audience that these cases were not a clinical study but a series of cases and were the last possibility before limb amputation.

He then went onto discuss surface modifications of materials and an antimicrobial effect. He discussed whether topographies can be found that kill bacteria whilst letting *msc* function.

He then described bone formation technology and described his studies that looked at vibrating surface of the cell. Cells vibrate at nanoscale and researchers wanted to know if this improved osteogenesis. Bone formation can be grown in 2D at the moment; Professor Dalby described the thinking behind growing bone in 3D.

He then explained how metabolites drive cell differentiation and how this could be transferred to industry so that stem cells can be grown on an industrial scale.

He finished by thanking his collaborators and agreed to answer any questions.

The President thanked the speaker and asked Mr David Brunton to propose the vote of thanks. He thanked the speaker for his mind blowing presentation. He then asked the audience to thank the speaker in the usual manner. The President then presented the speaker with an Odontological Society paperweight.

The next meeting is on **Tuesday 21st January 2020 in Lecture Theatre 2, Glasgow Dental Hospital & School.** It is entitled*‘Trying to help: Benefits and risks of dental volunteering in the developing world’*and will be given by Dr Andrew Paterson.