In memoriam Oliver C. Wells

February 14, 1931 – February 20, 2013

SEM researcher, husband & father, cave diver, ski instructor, ambulance corps volunteer, grandson of H.G. Wells (War of the Worlds), ...

Oliver Wells joined Sir Charles Oatley's group at Cambridge U. in 1953

- he built 2nd working SEM (after McMullan built 1st)
- Ph. D. Thesis 1957:
  - "Construction of a Scanning Electron Microscope and Its Application to the Study of Fibers"

The Scanning Electron Microscope.

Fig. 5.10(a)

Dust particle on rough background.

× 2,800

(low-energy collection)

Fig. 5.10(b)

Same field.

× 2,800

(high-energy collection. Second position of scintillator)

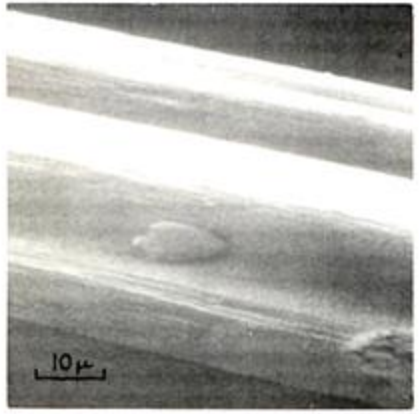


Fig. 5.~~10(c)~~ 11

Cellulose acetate fibre.

× 1,300

(high-energy collection. Second position of scintillator)

Cave diving in 1950's

Siebe Gorman P-Party Sets (semi-closed circuit nitrox rebreathers) as modified for cave diving in the 1950s. L to R: Oliver Wells, John Buxton – photo taken by Tudor Johnston, March 31, 1957.

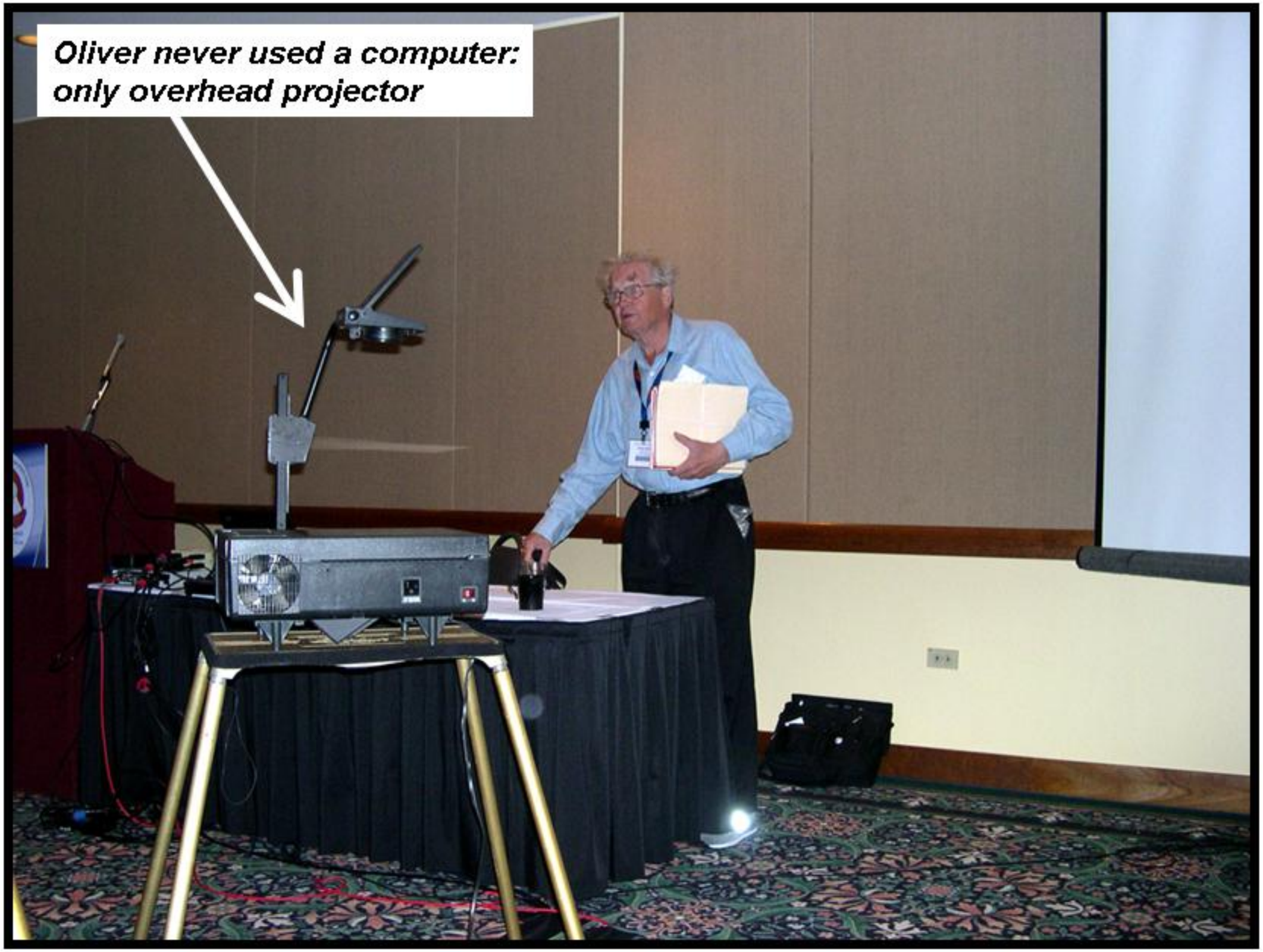
Siebe Gorman Sladen Suits modified with light-weight hoods as used for cave diving in the 1950s. L to R: John Buxton, Audrey Buxton, Oliver Wells – photo taken by Tudor Johnston, March 31, 1957.

O. C. Wells contributions to SEM 1950's

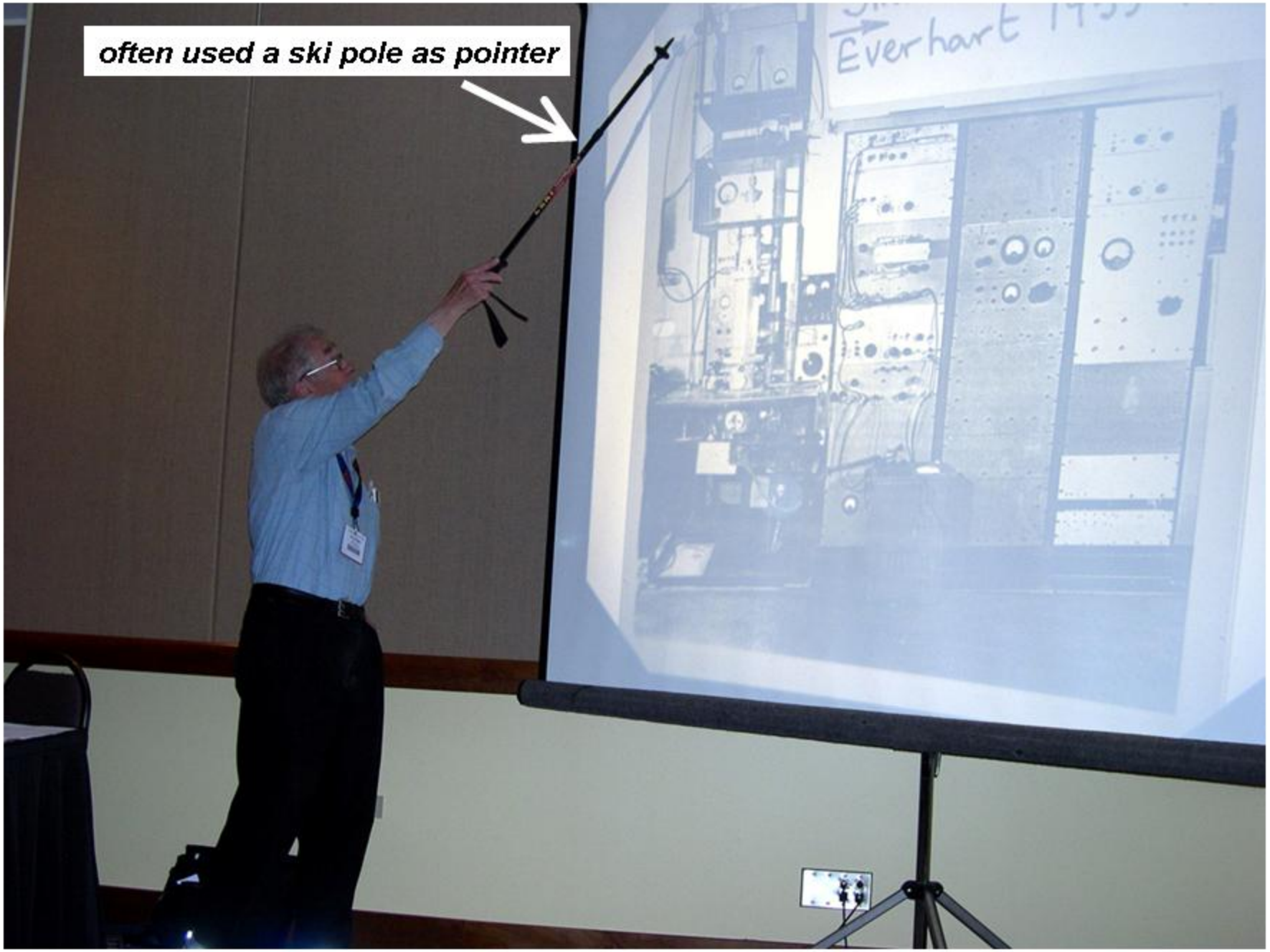
- **invented the scintillator backscattered detector**
  - **a.k.a "Robinson detector"**
- **developed the theory of atomic number contrast**
- **developed the technique of stereo imaging in the SEM**
- **developed methods to image non-conducting specimens in the SEM, including the use of positive ion beams**

-After graduation, worked at Erikson's, Nottingham, UK
-Moved to US in 1959 to work at Westinghouse
-In 1965, moved to IBM T. J. Watson Research Center

- **IBM received its first SEM in 1966 (only 2nd shipped to USA)**
- **Developed low loss electron imaging for high resolution imaging**
- **E-beam testing of devices**
- **Advanced backscattered electron imaging**
- **Retired 1993, continued as unpaid, Emeritus Research Staff Member**



Oliver Wells' keynote lecture M & M 2006


often used a ski pole as pointer
Everhart

drawing of how to remove the specimen holder

Oliver's Legacy:

- the SEM is the most successful electron beam instrument in the world
- think about Oliver next time you are on the SEM or DB-FIB. You would not be able to obtain the images you get now without the early work performed by Oliver & the other pioneers

Oliver Wells & Dennis McMullan at Microscopy & Microanalysis 2006

Oliver & Pamela Wells
Feb., 14, 2011
Oliver's 80th birthday