

Letter from Alexander Graham Bell to Mabel Hubbard Bell, November 30, 1904, with transcript

ALEXANDER GRAHAM BELL TO MABEL (Hubbard) BELL Beinn Bhreagh, C. B.
Wednesday, November 30, 1904. Dear Mabel:

My last letter before leaving here. We have had a large farewell Wednesday evening here — a stirring meeting.

Four events: (1) My father fell to the floor in his bedroom while waiting for wheeled chair. Struck on back of head — but does not seem to have hurt himself although he was somewhat confused for some time afterwards. Dr. Macdonald was here at the time and thinks he is all right. My father came into meeting later and stayed with us for about half-an-hour.

(2) The great event of the meeting was to have been the presentation of an address of sympathy to Charles Thompson and his wife — in regard to the treatment received in Sydney — but Charles was taken ill this morning and could not attend. Headache, sore throat, nausea and a high fever. Dr. Macdonald reported to the meeting that this was the direct result of exposure in Sydney, coupled with mental anxiety and distress for his wife. He does not think it will turn out to be serious or that it will prevent him from coming on with us.

(3) Mr. McCurdy told the meeting of new invention in photography — which I consider a most important step in advance. He gets rid of the developing box entirely — substituting an improved form of cartridge. The black paper 2 covering celluloid film is turned over edges of film and sewn on by sewing machine so that when cartridge is rolled up on roller — a slight space appears between successive layers — a space the thickness of the black paper. The turned edges prevent light from getting in but liquid can make its

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way into contact with sensitized surface so that development can go on if the cartridge is simply placed in developing solution. Liquid makes its way slowly between layers gradually expelling air.

By making a very dilute solution of developer longer time is required for development — but given time enough development should be complete and a few minutes more or less will not matter. By using dilute solution and long development he gets rid of the necessity of rotating film. Thus all the complications attached to developing box are done away with — and a specially prepared cartridge is alone necessary.

He made the first experiment in our presence, by simply putting his cartridge into a glass tumbler, containing the developing solution — and leaving it there for a quarter of an hour. The experiment was successful in demonstrating the principle involved though not completely successful in developing whole film. Where the liquid had penetrated the cartridge the development had proceeded C.K. — but he had neglected to provide an exit for the air — so that the liquid had only penetrated a few of the convolutions. The experiment was very interesting and demonstrated to my mind that he has made a most important invention destined to supplant his developing box as that is supplanting the old developing room. The liquid was admitted at one end of the roll — the outer end — and when an opening has been made giving water access to interior of roll — there can be no doubt that developing solution can be made to fill the spaces between layers. You could not pour tea out of a teakettle very well — if you did not have at least a pin-hole in the lid. So interior pin-hole is advisable to give liquid access at both ends of the rolled up film — not the side edges — but the interval and external layers.

But I started out to tell you of laboratory work. I think I told you that the vacuum box — though leaky — supported a mercury column 17½ centimeters high — so that undoubtedly it could be used to ascertain the atmospheric pressure required to crush in our tetrahedral structures. On Saturday last (November 26) I went down to the laboratory to make the experiment — but — but — but — it is exasperating.

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The pressure of the water inside the box — had burst open the tin envelope — which was not protected on the outside, as we had prepared only to resist pressure from the outside. The soldered seams were opened — and considerable leaks appeared upon the bottom. Mr. Ferguson was in despair and Mr. Stewart's heart was broken over the matter. I said it was now too late to do anything — we were going away so soon and needed all our time for experiments with the big kite. However, they were so distressed about the matter that I gave them Saturday to repair 4 damages and strengthen the box with wood outside the tin as well as within — so that an experiment might be made today — the very last opportunity we could afford for the experiments.

This afternoon the box was not in condition to be tried but they worked away until after dark with a lantern on laboratory verandah — and tried the box by lantern light. It still leaked but less than before and the mercury rose to 19½ centimeters — remaining steadily there. It was too late to make crushing experiments and we have postponed these until tomorrow. We may be able to get results after all. Hope so at least. We derive great comfort from the laboratory motto “Keep on Fighting” and etc.

Mr. Ferguson, in the depth of his despair, quoted it — and was willing to try again.

Your loving husband, Alec.