mes.ie (no attachments)
r, 10-16 D'Olier St, Dublin 2

e, postal address and
rs may be edited or cut.

Driver fatigue and road deaths

Madam, - I note that Ivor Call-ly, Minister of State at the Department of Transport, is con-erned that driver fatigue is not ufficiently recognised as a factor n road accidents (*The Irish Times*, December 21st).

Mr Callely is aware from his ontacts with gardaí that fatigue lays a fundamental role in a umber of accidents and goes on o exhort motorists to become ıore aware of the danger. In this e is strongly supported by a arda spokesman, Inspector Ray lcHugh, who urges tired motor-ts to exercise common sense by ulling over and taking a break ıstead of trying to continue iving.

In the light of the foregoing, ın anyone explain to me why it almost impossible to find a operly signposted and properly signated lay-by on our roads? ırely the provision of proper y-bys at reasonably frequent tervals would encourage tired otorists to rest and thereby con-ıbute to road safety. - Yours, .,

M.D. KENNEDY,
Silchester Park,
Glenageary,
Co Dublin.

reland's drink roblem

Madam, — To counter our derage- and binge-drinking cul-e, Liam Lawlor (December h) suggests the most effective easures are to increase the ce of drink and raise the legal nking age to 21.

On the first point, the price of nk in Ireland has risen steadily er the past decade, making this e of the most expensive places Europe to enjoy a drink. Has level of drinking decreased ng with this? No, it has reased, which would suggest t raising the price of drink is effective in tackling this ıe, not in the long term way. As regards raising the al age of drinking to 21, how uld this prove effective? If ear-olds can get their hands drink when the legal age is 18, I n't think they'll have much blem if we increase the limit three years. Also, increasing legal age to 21 in a culture h as ours would probably pro-

An Irishman's Diary

Cormac O'Raifeartaigh

What is the connection between the year 2004, a renowned German scientist fleeing the Nazi regime, and a high-level research institute in Dublin? The answer is that 2004 has marked the centenary of the birth of Walter Heitler, the former professor of theoretical physics at the Dublin Institute for Advanced Studies, who was the first scientist to discover how atoms bond together to form molecules.

Walter Heitler was born in Karlsruhe, Germany in 1904. Excelling in his studies at the local schools and college, he went on to pursue postgraduate research in physics in Berlin and Munich. There he became interested in quantum theory, a revolutionary new branch of physics that was being proposed in order to describe the world of atoms and sub-atomic phenomena. In 1926, Heitler received a scholarship to study at the University of Zürich under the great Austrian physicist Erwin Schrödinger, one of the world's foremost proponents of the new physics.

Heitler quickly mastered Schrödinger's "wave" approach to quantum theory, and in 1927 he and Fritz London provided the first explanation of the bonding of atoms in terms of quantum physics. It was a discovery of fundamental importance that laid the foundation for much of modern chemistry. The 23-year-old Heitler was immediately offered a position at the University of Göttingen, where he became familiar with other approaches to quantum theory and by the 1930s he was considered a world expert on the emerging subject of quantum electrodynamics (QED).

This idyllic career progression came to an abrupt halt in 1933 when the National Socialists came to power in Germany. Because of his Jewish ancestry, Heitler was dismissed from his post and he fled an increasingly hostile Germany for a temporary position at the University of Bristol, England. There he scored a number of successes for quantum physics, showing that several features of cosmic ray radiation (streams of elementary particles that fly through the earth's atmosphere) could be explained in terms of the radical new theory. However, when Britain declared war on Germany in 1939, Heitler was interned for some months. On his release, he decided to accept a position in neutral Ireland at the recently created Dublin Institute for Advanced Studies.

The institute had been founded by Eamon de Valera in 1939. A keen mathematician, de Valera realised that a research institute specialising in abstract disciplines such as mathematics, theoretical physics and Celtic languages would require little funding, while minimal teaching duties could attract some of Europe's top researchers. The plan was given a major boost when the world-famous Schrödinger accepted a position as director of the school of theoretical physics at the institute. Schrödinger suggested that a position be offered to his former star student. Heitler arrived in Ireland in 1941, where he soon acquired Irish citizenship and married his fiancée, Kathleen Nicholson, a biologist he had met in Bristol.

Walter Heitler: world-renowned scientist who played key role at Dublin institute

Both Heitler and Schrödinger were delighted to settle in peaceful Ireland and their tenure ensured that the Dublin institute was an immediate success. With a steady stream of visiting scholars of note arriving from around the globe, it quickly acquired a reputation as a centre for world-class research, a reputation it retains to this day.

Heitler was also a gifted teacher and he initiated a series of introductory lectures on quantum theory for final-year physics and chemistry students of UCD and Trinity College. This lecture course was subsequently published by the Oxford University Press in a famous monograph that remains highly popular today. He also played a large role in the modernisation of courses in theoretical physics in the Dublin universities and helped to found several research groups that are still active. Impressed by the challenges offered to theoreticians by the experimental study of cosmic rays at Bristol, he suggested that such a facility be set up in Ireland and the school of cosmic physics was duly founded at the institute in 1947.

Two years later, Heitler was offered the chair of theoretical physics at the University of Zürich, a highly prestigious position previously held by Schrödinger and by Einstein. Much as he loved Ireland, the lure of the new position proved too much (not least because of his love of mountain climbing and skiing). He left Ireland in 1949, though he retained close links with the country; indeed, his mother and his sister, who taught German at Alexandra College, remained in Ireland all their lives.

In Zürich, Heitler's technical research was complemented by research into the philosophy of science. He published a number of important articles and books on the relationship between science and religion and came to be highly regarded as a philosopher as well as a scientist.

Heitler's connection with the Dublin institute was rekindled in the late 1950s, when a gifted young UCD graduate joined the Zürich research group: one Lochlainn O'Raifeartaigh (my late father). On completing his Ph.D. under Heitler in 1960, Lochlainn returned to Ireland, where he founded a new particle physics research group at the institute. Heitler died in Zürich in 1981, but his legacy lives on in the success of that particle physics group in Dublin and in the success of the many other research groups he influenced around the world.

● *Dr Cormac O'Raifeartaigh lectures in physics at Waterford Institute of Technology.*