**Court of Appeal (Criminal Division)**

Things that go ‘boom’… or not? defining explosive substances and pyrotechnic effects in under the Explosive Substances Act 1883.

R v Margelis [2021] EWCA Crim 1215

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The appellant, Ovidijus Margelis, was charged with the offence of making explosive substances contrary to section 4(1) of the Explosive Substances Act 1883 where it is an offence where without lawful purposes:

Any person who makes or knowingly has in his possession or under his control any explosive substance.

 Margelis was a 26-year-old university student who embarked upon a scheme to fraudulently obtain money from the postal services. The plan was to send various packages in the post which contained devices sealed in a plastic container and made up of material shaved from the heads of safety matches which was connected to a battery-operated circuit on a timer. When the timer expired, the circuit would complete and heat up, igniting the match heads. This would set fire to the address label on the package causing the label to be destroyed and the package undeliverable. Margelis would then claim the value of the lost items from the carriers. Various items were sent between June and September 2020. Two parcels were discovered in an Amazon warehouse in Dunfermline where the devices had activated, causing holes to be melted into their lids as a result of the flames. Another package was delivered to a residential address with the device having failed to ignite, causing alarm and distress to the residents when the device was discovered.

 A week before the original trial, an application to dismiss was made arguing that the devices did not constitute an explosive substance under the definition of the Explosive Substances Act 1883 and therefore, under the principles set out in R v Galbraith [1981] 1 WLR 1039, there was insufficient evidence for a jury to convict and that there was no case to answer. Barklem J held that the device was an explosive substance under the 1883 Act and indicated that should he be the trial judge he would direct the jury accordingly. When Barklem J was later confirmed as the trial judge, he confirmed this earlier ruling which resulted in the appellant changing his plea to guilty.

 It is this ruling that was appealed where it was argued that the judge was wrong to rule that the devices in question were explosive substances under the 1883 Act (ground 1). It was also argued that the judge erred in not limiting his ruling as to whether the devices were capable of producing a pyrotechnic effect and that he should have left the question as to whether they did produce a pyrotechnic effect to the jury as a matter of fact (ground 2).

Key to this appeal was the question whether the match heads could be considered explosive substances. Counsel for the Appellant raised the argument that a safety match or a match head could not fall into the meaning of an explosive substance under the 1883 Act because if this were the case, anyone selling matches to persons apparently under the age of 16 or in a public place would be unknowingly committing the criminal offence under ss. 30 and 39 of the Explosives Act 1975 leading to absurdity. The counter argument of the prosecution was that this did not concern a safety match or a match head in isolation but concerned a device assembled by the Appellant made up of a significant quantity of match head composite designed to create a pyrotechnic effect in a similar way to a fuse or flare. The timer was designed to create a sudden triggering of the device and by producing an exothermic chemical reaction producing heat, light and smoke it fell within modern definitions of a pyrotechnic.

The court considered definitions set out in both statute and common law to determine the correct definition of an explosive substance. The starting point was s.9 of the Explosive Substances Act 1883 which defines an explosive substance as something that shall be deemed:

to include any materials for making any explosive substance; also any apparatus, machine, implement, or materials used, or intended to be used, or adapted for causing, or aiding in causing, any explosion in or with any explosive substance; also any part of any such apparatus, machine, or implement.

Although the definition in isolation is not very helpful, the case of R v Wheatley (1979) 68 Cr App R 287, which concerned a metal pipe bomb filled with fire-dampened sodium chlorate mixed with sugar, determined that the phrase ‘explosive substance’ in the 1883 Act should be construed in light of the definition of ‘explosive’ in the Explosives Act 1875.

Under Section 3 of the Explosives Act 1875, an explosion is defined as:

(1) … gunpowder, nitro-glycerine, dynamite, gun-cotton, blasting powders, fulminate of mercury or of other metals, coloured fires, and ever other substance, whether similar to those above-mentioned or not, used or manufactured with a view to produce a practical effect by explosion or a pyrotechnic effect; and

(2) Includes fog-signals, fireworks, fuses, rockets, percussion caps, detonators, cartridges, ammunition of all descriptions, and every adaptation or preparation of an explosive as above defined.

 The impact of the definition of explosive under the 1875 when read in conjunction with the 1883 Act is that an explosive substance is one that can produce a practical effect by explosion or pyrotechnic effect. Expert evidence at trial suggested that the devices in question were not designed to explode but were capable of causing a fire depending on their location and surroundings when functioned. According to the expert, an explosive was scientifically defined as ‘a substance or material that is capable of undergoing a self-contained and self-sustained exothermic chemical reaction at a rate that is sufficient to produce a substantial and nearly instantaneous pressure’. She suggested that there were two types of explosives – a low explosive substance that will undergo a burning reaction when ignited and a high explosive where a reaction occurs in the substance as a shockwave travelling faster than the speed of sound. It was suggested by the expert that a typical match head would be considered a low explosive.

 Lord Justice Males reasoned that when the substance does not fall within those listed under s.3 of the Explosives Act 1875, then it would be necessary to find that it was a substance used or manufactured with a view to producing one of the stated effects of either a practical effect by explosion or a pyrotechnic effect in order to meet the legal definition. As the term ‘pyrotechnic effect’ lacks definition in either the 1875 or 1883 Acts, the court considered the statutory definitions set out in the Pyrotechnic Articles (Safety) Regulations 2015. Under section 3(1) of the 2015 Regulations a pyrotechnic article is an article which:

(a) contains explosive substances or an explosive mixture of substances designed to produce heat, light, sound, gas or smoke or a combination of such effects through self-sustained exothermic chemical reactions.

Under Section 134 of the Policing and Crime Act 2017 it is an offence for a person to have a pyrotechnic article in his or her possession during a musical event and subsection 4 defines a pyrotechnic article as:

An article that contains explosive substance, or an explosive mixture of substances, designed to produce heat, light, sound, gas or smoke, or a combination of such effects, through self sustained exothermic chemical reactions other than –

(a) a match, or

(b) an article specified, or of a description specified, in regulations made by statutory instrument by the Secretary of State.

Although both provisions are identical, one significant difference is that the Policing and Crime Act 2017 explicitly excludes a match from the definition of a pyrotechnic article. His Lordship also considered the definition set out under the United Nations Recommendations on the Transport of Dangerous Goods Model Regulations where explosives and pyrotechnics are defined as:

(a) Explosive substance is a solid or liquid substance (or a mixture of substances) which is in itself capable by chemical reaction of producing gas at such a temperature and pressure at such a speed as to cause damage to the surroundings. Pyrotechnic substances are included even when they do not involve gases;

(b) Pyrotechnic substance is a substance or a mixture of substances designed to produce an effect by heat, light, sound, gas or smoke or a combination of these as the result of non-detonative self-sustaining exothermic reactions…

 Counsel for the Appellant contended that the requirements of the definitions to include an effect by heat, light, sound, gas, smoke or a combination of such, a simple fire would not suffice, and the definitions would require a significant eye catching element of flair similar to that of a firework. The Appellant favoured the definition of pyrotechnic from s.134 of the Policing and Crime Act 2017 with particular focus on the exclusion of matches from the definition.

 In R v Bouch (1982) 76 Cr App R 11 the question was whether a petrol bomb was an explosive substance. Lord Lane CJ set out three ways in which the petrol bombs could be found to be explosions. First that they could and did explode, second that they consisted of material for making an explosive substance (petrol and air) and that they were manufactured with a view of producing a pyrotechnic effect ([250-251]). When considering the nature of a pyrotechnic, Lord Lane looked at The Orion [1891] PD 307 where a flare was described as a pyrotechnic and concluded that items such as flares or a fireball would fall within this definition ([253]). As such, the court in Bouch approved the trial judge’s direction that ‘a “pyrotechnic effect” means fire. It means fire produce by the sudden triggering of a device, not a torch…’ ([250]). The prosecution in the case of Margelis argued that the igniting (or potential ignition) of the devices in on the various parcels fell within the meaning of this direction.

**Held**, **rejecting the appeal** that the device was not tantamount to simply a safety match, but a substance created from match heads designed to cause a fire at a pre-determined time. Although the 1883 Act provides no definition of an explosive substance, under section 3 of the Explosives Act 1875 an explosive substance is defined as being something capable of producing a ‘pyrotechnic effect’. The jury were entitled to apply the ordinary meaning of the word ‘pyrotechnic’ and make up their own minds whether the result of the ignited material would be considered a ‘pyrotechnic effect’ and as such the trial judge was correct to find that there was a case to answer and that this could be left to the jury to determine as a matter of fact.

**Commentary**

 Lord Justice Males dismissed arguments from the Appellant’s counsel equating the device used in the present case with safety matches or matches. The connotation being that when the combustible heads of the matches were removed, they ceased being matches and became components to a different type of device. It was perhaps a mistake on behalf of the Appellants anyway to argue that the definition of ‘pyrotechnic effect’ under s.134 of the Police and Crime Act 2017 should be favoured as the addition of s.134(4)(a), excluding a match from the definition suggests a match would have otherwise been classed as a pyrotechnic considering that the burning of a match head, whether as a match or as an ingredient to another type of device would have the same burning effect.

In the end, the Court determined that the case was concerned with an accumulated quantity of match-head composite forming part of a device intended to cause a fire at a predetermined time’ (at [50]). His Lordship also rejected the arguments of the Appellant that in order to bring about a ‘pyrotechnic effect’ that there would be a requirement of a significant amount of light or heat or as the Appellant put it, an eye-catching element of flair akin to a firework. The Court was clear that there was no requirement within the various definitions of a ‘pyrotechnic’ for a significant amount of light or heat or any need for any particular danger to life or property. The device, in question was capable of producing a sudden triggering of fire under the approved direction set out in R v Bouch. But the court preferred the definition of ‘pyrotechnic’ found in Regulation 3 of The Pyrotechnic Articles (Safety) Regulations 2015. The Court noted that the term ‘pyrotechnic effect’ is a term which cannot be given an ordinary meaning and a jury would need to be given assistance. As a result of Margelis a pyrotechnic effect:

…occurs when, as a result of a sudden triggering event, heat, light, sound, gas smoke or a combination of these effects is produced through a self sustained exothermic (i.e. energy releasing) chemical reaction.

 The definition of an explosive substance found through the combination of the Explosives Act 1875 and the Explosive Substances Act 1883 made reference to ‘pyrotechnic effect’ but failed to provide an adequate definition of what this involved. The decision in Margelis helps remedy this while also consolidating the modern definitions of pyrotechnics found in cases such as Bouch and legislation such as the Policing and Crime Act 2017, the Pyrotechnic Articles (Safety) Regulations 2015 and the UN Recommendations on the Transport of Dangerous Goods Model Regulations.

 The case of Margelis is just the latest of a spate of cases concerned with the need to clarify definitions under the 1883 Act. In R v Copeland [2020] UKSC 8, the Appellant who was diagnosed with Autism Spectrum Disorder, was convicted with knowingly possessing or controlling an explosive substance contrary to s.4(1) of the Explosive Substances Act 1883 when he was found to possess a quantity of Hexamethylene Triperoxide Diamine (HMTD). Under s.4(1) it will not be an offence if it can be shown that the substance was in his possession or control for a lawful object. The Appellant’s Autism Spectrum Disorder manifested in an obsessional interest in how explosives worked and it was claimed that the possession of the HMTD was for his interest, education and experimentation. The court considered more recent legislation such as the Explosive Regulations 2014 along with the Explosive Regulations 2014 Safety Provisions Guidance which allows for private individuals to manufacture explosives and have them in their own possession for their own personal use. It was sufficient that the Appellant establish on a balance of probabilities that the HMTD was in his possession for the lawful object of experimentation and self-education. He did not need to explain the precise way in which the substance would be used. Since the prosecution could not demonstrate that he had unlawfully possessed or controlled the explosive substance his conviction was quashed.

 Likewise, in R v Flint and Holmes [2020] EWCA Crim 1266, both Appellants claimed to justify possession and control of explosive substances under s.4(1) of the 1883 Act for lawful object. In the case of Holmes, police discovered on his premises various explosive substances including gunpowder, HMTD, Triacetone Triperoxide (TATP), gun cotton, fuses as well as various other substances and the remnants of improvised explosive devices (IEDs). Videos were also discovered showing Holmes igniting explosives he had bult in his kitchen, garage and garden. In the case of Flint, police seized from his camper van a box containing seven rocket motors, ignition fuses, black low explosive powder and a box labelled “explosive” containing a range of devices relating to explosives. A further search of the Appellant’s lock-up revealed 550 grams of charcoal powder, 500 grams of potassium nitrate, 50 grams of potassium permanganate, 500 grams of sulphur powder as well as equipment capable of constructing IEDs. In Holmes’ case he claimed that the substances were in his possession and control for his own entertainment and amusement. In Flint’s case he claimed to possess and control the substances due to interest and curiosity and that he planned to use the devices to modify a skateboard so that it could be rocket propelled. Both Appellants sought to rely on Copeland in finding that the entertainment, amusement, interest and curiosity amounted to a lawful object.

 Lord Justice Fulford, in rejecting the appeals, held that had the correct directions had been given to the jury on the issue of lawful object, the appellants would not have been able to make out the defence on the balance of probabilities. In Holmes’ case, the noise and damage of neighbouring property amounted to a continuing public nuisance which rendered the object unlawful regardless of his claims of experimentation, self-education and curiosity. In Flint’s case, the court deemed that in going beyond the experimentation to find out information such as propellant qualities and burn time, improvements and modifications to provide a thrust for his skateboard and instead engaging in the acquisition of components in constructing IEDs and posing a danger to neighbouring people and property he had gone beyond any lawful object of experimentation and self-education or curiosity.

 While English law continues to rely on an offence of making or knowingly possessing an explosive substance stemming from 1883, cases such as Copeland, Flint and Margelis are crucial in trying to update the law to the 21st Century. Just as Copeland seems to have helped clarify the requirements for determining the meaning of ‘lawful object’ under s.4 of the 1883 Act and Flint sets out the boundaries of this defence; Margelis is an important step in helping the courts and practitioners clarify the meaning of an ‘explosive substance’ and ‘pyrotechnic effect’ in the absence of any codification under recent legislation from Parliament.

**Zach Leggett**