

The first accident occurred at the works of the Colonial Ammunition Co., Ltd., Mount Eden, Auckland, and was due to an explosion *en masse* of percussion caps for shot-gun cartridges. The girl employed in filling these caps into metal trays was standing alongside the bulk supply when the explosion occurred and was killed instantly, her body being hurled some 40 ft. across the room and through the wall on to the path outside. Four other employees working close by suffered from shock and pieces of flying capsules, but in no case were these injuries serious. The explosion was typical of that of a detonator composition. Within a narrow compass of the seat of the explosion intense pulverizing of all woodwork was observed, but outside this small radius the damage was of a minor nature, the roof of the building being slightly displaced and a number of windows being shattered.

Amongst the several likely causes the most probable appears to be the detonation of some loose caps lying on a wooden tray by the dropping on to them of a metal tray in which the caps were assembled. The disturbing factor was that the caps should have exploded *en masse*, and a searching inquiry was instituted. It was ascertained that the caps, which were imported into New Zealand under the description of "safety ammunition," were actually so described by the manufacturers in Germany, did not comply with the British definition of a percussion cap. In view of this fact and also of the fact that the caps were shipped by the manufacturers in Germany to a port in England for trans-shipment to New Zealand, the Colonial Ammunition Co. had every reason to believe that these were authorized safety caps and acted in good faith in so describing them when applying for permission to import supplies.

Arrangements were subsequently made with the company for the use of this type of percussion cap to be discontinued and for an authorized percussion cap to be employed instead.

The second accident occurred at a fireworks-factory in Christchurch. The premises consisted of a number of small wood and iron sheds in which various operations incidental to the manufacture of fireworks were carried out. The origin of the accident was the ignition of a rocket star when trodden upon by one of the girls who was wearing shoes with iron heel-plates, and was in this respect the direct outcome of a definite breach of the regulations. The star set fire to a number of rockets nearby, and neighbouring sheds were ignited by flying rockets. The conflagration was aided by a high wind, and in all eight buildings were destroyed. The destruction of the buildings was due to fire, except in the case of a small magazine containing rocket-powder, which exploded. One of the girls in the shed in which the outbreak originated was overcome by flames and smoke, and though rescued from the building alive she succumbed to burns and shock about a fortnight later. A few windows in neighbouring houses were shattered by concussion from the explosion of rocket-powder, but as the employees had previously been withdrawn to a safe distance no personal injury resulted from this cause.

On investigation it was found that the shed where the original ignition occurred was described on the license as a "non-danger" building being used for case-rolling and paper work. Without any notification to the Department the building was, some two or three weeks prior to the accident, put into use as a rocket-finishing shed, thus altering the whole character of the building and converting it into a "danger" building. The accident is attributable to this fact and also to a certain laxity of control which permitted the wearing of improper footwear by the employees.

As usual, reports were received of a number of accidents arising out of the use of explosives. In most cases the cause was due to premature explosion or to smoking, naked lights, &c. Accidents from misfires and drilling into unexploded portions of charges were not frequent, this being attributable, no doubt, to the widespread use of low-freezing explosives.

*Sodium Chlorate.*—This chemical is still responsible for a number of accidents every year. Happily no fatal accidents have been recorded in the period under review, but in several cases injuries of a more or less serious nature have been sustained. The most noteworthy accident occurred with empty bags which had contained sodium chlorate. These had been placed on a lorry which was returning to the depot with a number of workmen on board. Presumably the men were sitting on the bags and no doubt their movements, with the swaying of the lorry, caused sufficient friction to ignite the chlorate, since in the course of the journey the bags burst into flame and five men received painful burns. The hazards of this chemical have been made public time and again not only in these reports, but also in the columns of newspapers throughout the Dominion. Under these circumstances the fact that ignorance still persists is surprising. It might be thought that in the case of empty bags no danger need be apprehended, but it must be pointed out that, apart from any small amounts of chlorate adhering to the sides of the bag, the fibres of the material are almost sure to be impregnated with chlorate either owing to deliquescence or contact with moisture. Chlorate dispersed amongst the fibres of any organic material in a fine state of division is particularly sensitive to ignition by friction or percussion. Bags which have contained sodium chlorate should therefore either be destroyed by burning in the open at a safe distance or else be repeatedly washed with large quantities of fresh running water.

*Detonators.*—Accidents with detonators appear to reach a peak at intervals, and this year has shown a large increase over the average yearly total. Case after case has been reported this year of stray detonators being picked up by persons, mostly children, who are ignorant of their character. Curiosity on the part of the finder usually leads to an attempt to investigate the object, and an essay is usually made to prick out the composition with an instrument such as a needle. In other instances on record the person concerned has evidently been aware of the fact that he is dealing with a detonator, but has not realized the danger and has had the temerity to explode it by putting it in a fire or striking it with a stone.

Some years ago when the toll of accidents had been exceptionally large the Department arranged for the preparation of special cards containing a warning against the misuse of detonators and having mounted thereon dummy detonators of various types. These cards were distributed to all the schools throughout New Zealand, but no doubt most of them have by now become worn out, and arrangements have accordingly been made for the circulation of a fresh supply.