

metabolism to a similar extent when cells and cell-free extract are used; (ii) that in both cases phosphate stimulates the glucose metabolism to about the same degree as potassium, which is interesting in the light of the statement by Rapoport and Guest⁴ that for rats the minimum lethal doses of potassium and phosphate ions are of the same order; (iii) that the stimulation is most marked when fermentation has proceeded only to a slight extent; (iv) that Zwaardemaker's relationship for potassium and uranium does not appear to hold for the degradation of glucose by yeast or yeast extract.

We are indebted to the Director of Scientific Research, Ministry of Supply, for kind permission to make this communication. It is expected that a detailed report will be rendered in due course.

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¹ NATURE, 150, 233 (1942).

² NATURE, 145, 823 (1940).

³ Conway and Boyle, NATURE, 144, 710 (1939).

⁴ Maizels, *Lancet*, 722 (June 7, 1941).

⁵ *Amer. J. Physiol.*, 45, 147 (1917).

⁶ *Proc. Soc. Exp. Biol. Med.*, 49, 147 (1942).

Seed Potato Disinfection by Conveyor Belt Dipper

UNTIL recently one of the factors limiting large-scale application of disinfection of potato seed for the prevention of various diseases was that no suitable appliance had been evolved for handling large bulks of seed potatoes. During 1940 and 1941 considerable tonnages of early varieties were dipped in Scotland on lifting by a simple derrick erected over a large tank of the solution. Although effective, this method entailed considerable labour and left much to be desired.

In order to provide for the disinfection of large quantities of seed potatoes expeditiously and with minimum labour and damage, a plant has now been devised, at our suggestion, utilizing the conveyor belt principle. The essential feature is a dipping tank holding approximately 600 gallons, provided with a conveyor belt operating below the surface of the solution. This dipping plant can be worked in conjunction with the usual type of grader, the potatoes being delivered from the picking belt of the grader down a wooden chute into the solution, where they travel horizontally for approximately one minute and are then elevated out of the tank at an angle of 30°. The elevator delivers them directly into boxes which are immediately removed to the open field and stacked there for drying, which takes only a few minutes.

During the present lifting season, more than 1,000 tons of Ninetyfold and Arran Pilot seed potatoes have been treated by a pair of these plants, installed by L.O. Tractors, Ltd., Coupar Angus, for Mr. T. A. Wedderspoon of Eassie. The disinfectant used was one of the well-known organo mercury potato disinfectants.

As a result of the large-scale experience gained this year, it is expected that the value of this principle of improved potato dipping will become established.

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Civil Defence Against War Gases

THE article on "Civil Defence Against War Gases"¹ is substantially correct, but contains one serious and one minor error. It states that after the War of 1914-18 "the nations solemnly renounced the use of gas at a Geneva conference, a pledge which has so far been kept—nor is there any reason why it should be broken". The Italians quite certainly used gas against the Abyssinians. There is evidence² that the Germans have killed many thousand Jewish civilians with poison gas.

There is thus no moral objection to using poison gas against Italy, and, if the above reports are confirmed, none to using it against Germany. For poison gases are no more inhuman than other weapons used by both sides. I should prefer dying from lung oedema due to phosgene than from a septic wound or severe burns. There may be tactical objections at present, but if at a later stage in the War these cease to hold, I trust that the United Nations will not hesitate to use poison gas if experts think this will save the life of a single Allied soldier, sailor, or airman.

The other doubtful statement is that "everyone in Great Britain has a gas mask and knows how to use and care for it". They ought to know, but very many do not. The present lull in raiding might well be used to see that more of them do.

Finally, the opinion expressed as to the limited effects of a gas attack, though valid against the wild statements which were commonly made before the War, may require some modification in view of the new technique of concentrated raids. If gas bombs were dropped as widely dispersed in space and time as high-explosive bombs were in the London raids of autumn 1940, they could nowhere produce a lethal concentration of non-persistent gas except in the immediate neighbourhood of individual bombs. But if some hundreds of tons were dropped within an hour in a restricted area, they might generate a gas cloud of a dangerous density.

For this reason I think that the danger of a gas attack on some large British city is rather greater than readers of the article might believe, and the need for preparation more urgent.

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¹ NATURE, 150, 642 (1942).

² For example, *Polish Fortnightly Review*, 57, 2 (1942).

A Varnish for Fixing Smoked Tracings

IN damp weather it has been noticed that a good many varnishes produce a white precipitate when used for fixing smoked tracings after experimental physiology work. This naturally interferes with the final tracing and sometimes forms all over it, thereby obliterating the original work. We have prepared a great number of varnishes, and of them the following has been satisfactory. A white haze does form even with this varnish in a moist atmosphere, but it disappears on drying. The following is the formula for the varnish: gum juniper, 60 gm.; colophony resin, 13 gm.; castor oil, 5 mil.; industrial methylated spirits, 200 mil. This produces a glossy finish, ideal for demonstration purposes and even class work.

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