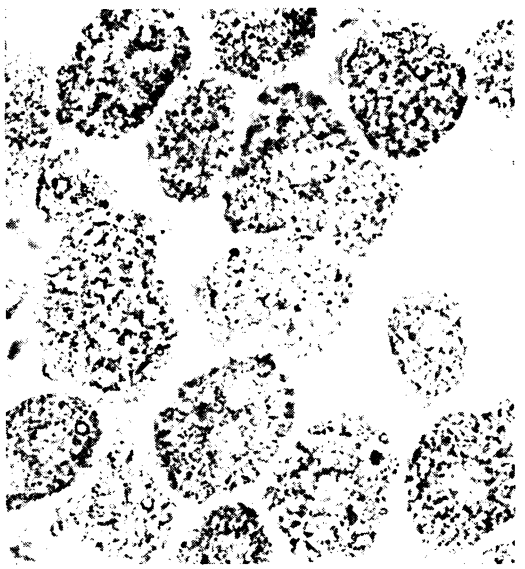

Fig. 2. Hepatic parenchymal cells from the same liver after separation from the RE cells, unstained (×800).

The afore-described procedure does not appear to destroy structural integrity of the cells, because neither cholesterol or biuret protein could be detected in the suspension fluid even after 4 hr of storage. Furthermore, the washed cells were observed, after the addition of ATP, to reduce triphenyl tetrazolium chloride at a normal rate.

References and Notes

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Effect of Maleic Hydrazide on the Respiration of Mature Onion Bulbs

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In a previous paper (*1*) the effects of aqueous sprays of maleic hydrazide on young, rapidly growing onion plants were presented. Results of enzyme assays indicated that maleic hydrazide reduced the dehydrogenase activity of the treated plants. The present paper (*2*) reports the respiratory effects of maleic hydrazide on stored mature onion bulbs harvested from plants previously treated with foliar applications of the hydrazide.

Sweet Spanish onions, Utah strain, were grown from seed and 14 wk after planting were treated with foliar sprays containing 500, 1000, 2000, 3000, and 4000 ppm of maleic hydrazide applied in the form of the diethanolamine salt at the rate of 0.16, 0.32, 0.64, 0.96, and 1.28 lb/acre of the free hydrazide. The mature bulbs were harvested 17 days after the hydrazide treatment, cured at room temperature for 2 wk, and placed in storage at 1°C for 23 wk.

After the storage period, it was observed that treatments of 3000 and 4000 ppm of maleic hydrazide greatly inhibited sprouting, whereas nontreated bulbs and bulbs treated with low concentrations of the hydrazide exhibited considerable sprouting.

Dehydrogenase activity and respiration as measured in a Warburg respirometer were determined on suspensions of onion bulbs minced in equal weights of phosphate buffer at *p*H 7.4. An anaerobic technique employing p,p′-diphenylenebis-2-(3,5-diphenyltetrazolium chloride), DBDTC, was used for the estimation of dehydrogenase activity (*3*). The colored reduction product was extracted with benzene and the optical density of the solution was read at 520 mμ. Oxygen absorption and carbon dioxide production were determined on the minced suspensions for 2 hr at 37.5°C.

At the end of the 23-wk storage period the effect of maleic hydrazide applications was evident, as indicated by the dehydrogenase activity and the respiration of the stored bulbs. The results of four determinations (Fig. 1) indicate that maleic hydrazide applications are stimulatory to respiration at low concentrations and inhibitory at high concentrations. An increase of the dehydrogenase activity and oxygen absorption could be obtained by the addition of succinate to those minces prepared from plants receiving low concentrations of the hydrazide. No stimulation of the enzyme system could be obtained by the

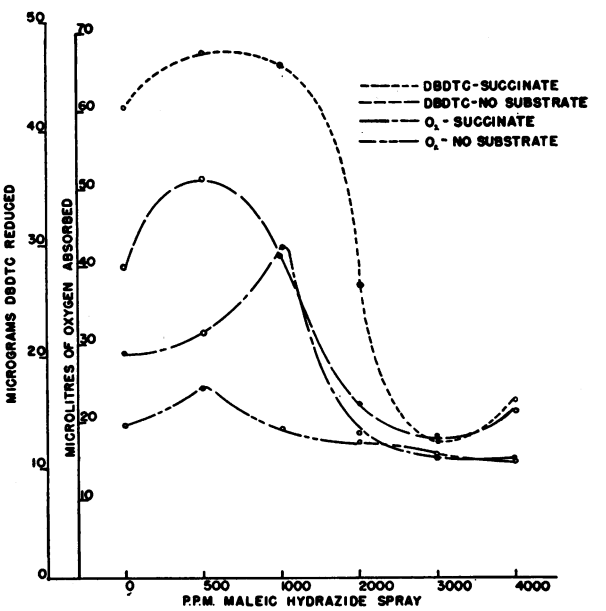

Fig. 1. Effect of maleic hydrazide on dehydrogenase activity and on oxygen absorption, as determined on 1 ml of minced onion tissue containing 58 mg of dry matter.

Table 1. Correlation coefficients between dehydrogenase activity (DBDTC reduced) and respiration of onions as affected by maleic hydrazide treatment.

	DBDTC reduced as compared with	
	O_2 absorbed	CO_2 evolved
Succinate added	+0.908*	+0.753
No substrate added	+0.929†	+0.938†

* Significant at the 5 percent level.
† Significant at the 1 percent level.

addition of the substrate to preparations made from material treated with high concentrations of maleic hydrazide. Succinic dehydrogenase appears to be markedly inhibited in material treated with high concentrations of maleic hydrazide. Examination of the data indicated a positive correlation between respiratory activity as measured by DBDTC reduction and by oxygen absorption. Correlation coefficients are given in Table 1 and suggest that the same phenomena are being measured by both methods.

Growth inhibition from applications of moderate concentrations of maleic hydrazide usually takes place for a limited time, the duration being dependent on the concentration of the applied material (*4*). The ability of the treated plant to recover its normal growth after an initial inhibition suggests that maleic hydrazide is converted to noninhibitory compounds. At high concentrations of the hydrazide, the conversion may be so slow that concentrations inhibitory to respiration remain after long periods.

References and Notes

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4 June 1954.

Communications

Scientists and the McCarran Act

In the 19 June 1954 issue of the *Saturday Evening Post* there appeared an editorial under the title, "McCarran Act will bar no genuine visiting scientists." The editor referred to a recent lecture at Philadelphia, in which I described the difficulties that the U.S. national committees of various scientific unions face when they consider invitations to their unions for meetings in this country. The article implies that I am one of those who "are moving heaven and earth to undermine our immigration policy," and that the purpose of my lecture was "to scrap the McCarran Act," a purpose that is also shared by the World Council of Churches. The editor continues by asserting that under the present interpretation of the immigration act no genuine visiting scientist will be barred unless "he turns out to be a really bad egg."

On 28 June I wrote to the editor of the *Post,* but, after having at first offered to print my letter, Frederic Nelson, associate editor, has now informed me that "the editor who runs our correspondence column feels that we have printed all the letters he thinks we should on the McCarran Act editorial," and that while he himself is sorry about this decision he doubts "that many readers would have reached the conclusion that you should be associated with those who are attempting to change the national policy on immigration." My letter of 28 June was as follows:

> I must take exception to some statements made in your editorial of 19 June concerning the McCarran Act and its effect upon the admission "to our shores" of foreign scientists—those who are not "really bad eggs." You are wrong in associating me with "groups who are moving heaven and earth to undermine our immigration policy." As an astronomer, I know full well that the laws of Newton and Kepler will forever prevent me or anyone else from moving either the earth or the heavens. The heavenly bodies are one of my main interests in life, but my "heavenly" interests do not extend as far as the World Council of Churches, and I do not carry the ball for them.
>
> But regarding our man-made laws, there is one aspect about which I am concerned. Do you *really* think, Mr. Editor, that there is nothing wrong with our present visa policy as it affects the scientists? I do not advocate, and I have never done so, that we "scrap the McCarran Act."
>
> I am a Russian-born naturalized citizen of the United States to whom America has been good, and all my actions since I came "to these shores" in 1921 and all my public statements have been intended to help in the protection of the freedom and the greatness of our country. I warned against the dangers of Russian communism when it was quite unpopular for anyone to do so. And I am not likely to forget the wounds—physical and spiritual—that I suffered as a young officer in the desperate struggle against the Reds when they seized power in Russia. But, as a scientist, it is also my duty to bring to the attention of the people that, for our own protection, (i) we need the knowledge of foreign scientists, and (ii) we must seek and keep their friendship. Do you remember the words of President Truman on 8 Aug. 1945, when he announced the dropping of the first atom bomb over Hiroshima: "Sixteen hours ago an American airplane dropped one bomb on Hiroshima. . . . It is an atomic bomb. It is a harnessing of the basic power of the universe. The force from which the sun draws its powers has been loosed against those who brought war to the Far East." The sun was our clue to the solution of the problem of atomic energy, and all our great physicists—Bethe, Teller, and Oppenheimer too—knew that atomic power on a tremendous scale was possible, because astronomers had told them