

which tells the engineer to stop the train.

Speaking of stops, this train has, among other records, that of making the longest non-stop passenger run in the world. This is the 325 miles between Caliente, Nev., and Salt Lake City. Non-stop means not even a stop for servicing the train or receiving orders.

They had me guess at the speeds. I did pretty well at first—watched from the side windows and tried to think of an automobile's speed, and guessed 50 miles an hour when we were making 56. A little later they asked me again, but I was way off that time. We were drifting so smoothly it hardly seemed any faster, but the speedometer showed 92.

It was so lovely riding up in the cab that I hated to leave. There was a cool, clean breeze coming through the windows, which, incidentally, operate like those of an automobile, including non-draft features. And of course, there are windshield wipers, defrosters and sun shields, and it is heated in winter. Quite a contrast to the sooty, cold, uncomfortable cabs behind the steam locomotives from which the engineer has to lean out of the window most of the time to see the track ahead.

The same contrast between the old and the new in trains is seen and quite literally felt in the rest of the streamliner. Travel luxury seems to have reached its acme on a train like this. All of it, of course, is due to the engineering scientists who developed not only Diesel engines for smooth speed but also air conditioning which makes you comfortable and permits the interior decorator to introduce beauty and novelty into the surroundings.

Science News Letter, August 6, 1938

More than 44,000 children have been measured so far in the effort to determine standard sizes for clothing.

PHYSIOLOGY

Calves Found to Gain Weight On "Indigestible" Nitrogen

Findings May Mean That Livestock Benefit From Increased Nitrogen After Fertilization of Pasture

PRACTICAL results of great importance to the livestock industry may come from experiments at the University of Wisconsin, in which it has been shown that calves can gain weight on forms of nitrogen not supposed hitherto to be digestible and assimilable by animals.

The work was done by a three-man team: Prof. E. B. Hart, H. J. Deobald, and Dr. G. Bohstedt. They used four male calves. One of the animals was kept on a low-protein ration, as a control. Another was used as a second control, receiving a conventional ration of milk protein in addition to the low-protein ration.

The other two received supplementary diets of simple nitrogen salts; the first getting ammonium bicarbonate and the second urea. These are the salts supposed to be of no value as stock feed. Yet the animals did gain weight on them, 105 and 110 pounds respectively in 14 weeks. This was intermediate between the small gain (65 pounds) shown by the low-protein calf and high gain of 126 pounds by the calf receiving the milk protein.

What caused this gain is a physiological riddle for which the three experimenters do not at present venture an answer. It may be possible that bacteria in one part of the calf's multiple stomach transformed the simple compounds

into more complex ones, digestible by the animal. Then, when the bacteria passed on into another section of the stomach, digestion may have occurred in the ordinary way. But this explanation is as yet only conjectural.

It will be necessary to carry on more extensive feeding trials before the full economic possibilities of this pioneer research project can be developed. However, at least three lines of possible significance are indicated:

(1) Livestock probably benefit from the increased nitrogen content which fertilization produces in pasture grasses, quite apart from their higher protein content and better yield.

(2) The feeding value of the newly developed silage made from alfalfa plus molasses may not be seriously injured by the breakdown of part of its protein into ammonia compounds, through bacterial fermentation.

(3) It may eventually be found practical to use such relatively simple nitrogen compounds as ammonium bicarbonate and urea to replace part of the higher-priced protein supplements in present-day stock rations.

Science News Letter, August 6, 1938

● Radio

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