

DISCUSSES VACUUM AND ALLIED TOPICS

VALUE IN EVERYDAY LIFE

Professor Tells How Vacuum in Air Was Discovered and Relation to Weight of Atmosphere; Other Facts

The small school boy who defined a vacuum as a great empty place where the Pope lives has not visualized nor understood the real importance of the vacuum in its relation to the home radio set nor anything of the dramatic effort over hundreds of years which has featured the discovery of the weight of air and relative problems, according to Prof. Lester I. Bockstahler of the physics department of Northwestern university who talked of vacuum and the radio recently from Station WMAQ of The Chicago Daily News.

Dr. Bockstahler briefly sketched the efforts of the Greek philosophers before Christ and their getting the first clues of a vacuum and of the accidental discovery by the Duke of Tuscany in digging a well of the part air plays in our everyday routine; of the interest shown by Galileo in the experiments of Torricelli's work with a tube of mercury and of the later experiments in Paris by Pascal; of the great interest shown in these scientific labors by German, British and American investigators. Then for two hundred years the possibilities of the vacuum were entirely ignored, the speaker said, and continued as follows:

Dewar's Discovery
"In the middle of the last century Dewar, an Englishman, became interested in making and storing liquid

air. He found that when the liquid was placed in a vessel with double walls and the air removed from between the walls the liquid did not boil away so quickly. The molecules of air between the walls act as carriers of heat from the outer to the inner walls, thus causing the liquid to boil away or evaporate. The fewer the number of molecules the less the evaporation. So the problem resolved itself into getting rid of the air molecules or creating a vacuum. Experiments with various pumps and different absorbing substances enabled Dewar to get a relatively good vacuum. Here is the invention of the thermos bottle.

Affects Everyday Life
"When the methods of making vacuum reached a certain stage of development new fields of application and investigation were opened. It is another story to tell how the vacuum affects our everyday life, how it helps to make the home, the factory, and the hospital render our lives safer and more comfortable. We may call to mind just a few of the things the vacuum has made possible and in what widely divergent fields it assists. There is the thermos bottle, the electric light, the carpet sweeper, the X-ray tube, the photo-electric cell which enables pictures to be transmitted by wire and wireless, the thermionic tube—the master weapon of the radio engineer, the marvelous performance of which I need not remind you. This tube is now used in practically every field of investigation. It is unsurpassed for making delicate measurements. Our present knowledge of the nature of electricity and matter is due largely to the development of the vacuum."

URGES BOND ISSUE TO DEVELOP FORESTS

President Illinois Sportsmen's League Says Conservation Demands Expense

A twenty-five million dollar bond issue for purchase and development of state forests was urged by H. C. Norcross, president of the Illinois Sportsmen's league, in a communication received recently.

This bond issue is similar to one passed by the last session of the legislature in Pennsylvania. It will be submitted to the voters of that state at the election this year.

In commenting on this proposition for Illinois, which was the main issue before the Illinois Sportsmen's league at its annual meeting held at Belleville, Mr. Norcross said in part:

"The forest and timber shortage in Illinois is serious. If the prosperity of our state is to continue, the restoration of forests is imperative. The restoration of our supply of song and game birds, game and furbearing animals and purity of water supplies in streams and lakes, are closely related to development of forests.

"All available lands for hunting and

fishing will soon be in the hands of a comparatively few wealthy men. The people of Illinois must act at once to save for themselves and their children the American principles of free enjoyment by every citizen of these valuable sources of healthful recreation.

"The creation of state forests should be of interest to practically every person in the state, as it means hunting, fishing, camping and other outdoor recreation for the man in ordinary circumstances, as well as the wealthy. It will cost at least \$25,000,000 to buy the land the state should own. Future generations will enjoy the benefits, so they should share the expense. This can be accomplished alone by the bond issue we propose."

The "wa-hoo" of the Indian will mingle with the "yip-yip" of the cowboy and cowgirl when the second annual Chicago rodeo gets under way in Soldiers' Field, Grant Park, Chicago, August 14, giving an additional touch of color to this cross-section of the real west which the domestic and foreign commerce committee of the Chicago Association of Commerce has arranged.

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