

## —Dietz on Science— GALILEO MADE WORLD'S FIRST THERMOMETER

Instrument First Made in  
1592 Functioned as  
Those of Today.

BY DAVID DIETZ  
Scripps-Howard Science Editor

Almost every one knows that Galileo was the first to turn a telescope upon the heavens. But probably only a very few people realize that he owed our methods of measuring heat as well as our methods of studying stars to that scientific pioneer. Galileo made the first thermometer.

The story is told by Dr. Morton Mott-Smith, former professor of physics at George Washington university, in his excellent little book, "Heat and Its Workings," published by Appleton.

When Galileo made his first thermometer, there was no barometer in existence. That instrument was invented later by Torricelli, a pupil of Galileo's.

And so, without knowing it, Galileo built an instrument which functioned primarily as a thermometer, and secondarily as a barometer, and in consequence was by so much inaccurate as a thermometer. But it was a beginning.

**Heat Applied to Bulb**

It was in 1592 that Galileo built the world's first thermometer. It was not until 1609 that he turned his first little telescope upon the stars. The first thermometer was the air thermometer. Galileo knew, from various experiments, that air expands a considerable amount when heated.

His thermometer consisted of a large glass sphere or bulb having a long narrow stem attached to it. The sphere was supported so that the stem extended below and dipped into an open dish of mercury.

Before dipping the stem into the mercury, Galileo heated the bulb slightly. This caused the air within it to expand a little. The stem was then inserted into the mercury. When the bulb cooled off, the air within it contracted. This caused some of the mercury to be sucked up in the stem.

**Recording Is Reversed**

The thermometer now was ready for use. As the temperature rose and fell, the height of the mercury column changed. But it is interesting to notice that this thermometer functioned in just the opposite fashion to the present day one.

When the day grew hotter, the air in the bulb expanded and drove the mercury down. When cool weather came along, the mercury rose. Dr. Mott-Smith points out that if this type of thermometer had persisted, our ideas of high and low as applied to thermometers might have been just the opposite to what they are today.

Galileo had no scale on his thermometer. But they were added by subsequent experimenters.

**SLAYS GIRL ESCORT  
AS LOVE IS SPURNED**

Maine Farmhand Commits Suicide  
After Killing Pair Leaving Dance.

By United Press

MONTVILLE, Me., Oct. 3.—A jealous farmhand trapped the girl who had spurned his attentions as she rode home from a dance early today, killed her and her escort, and committed suicide.

The dead were:  
Elwood Kane, 33, of Montville, the farmhand.  
Phyllis Rowell, 16, of Montville.  
Fred B. Jackson, 34, of Montville.

Last year, 57,544 signatures, representing seventy different nationalities were entered on the register for visitors kept at Shakespeare's birthplace at Stratford-on-Avon.

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## Skyball Contest Entry Blank

Name \_\_\_\_\_

Address \_\_\_\_\_

Last Birthday \_\_\_\_\_

MARK X YOUR AGE CLASS

Junior Class 6 to 10 inclusive	Intermediate Class 11 to 14 inclusive	Senior Class 15 to 19 inclusive
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Using Washington street as the north and south dividing line and Meridian street as the east and west dividing line. Mark X in the section in which you live.

Southeast \_\_\_\_\_ Northeast \_\_\_\_\_ Southwest \_\_\_\_\_ Northwest \_\_\_\_\_

Hold this blank and give it to the official in charge of contest on the day of contest.

Tournaments in each section 9:00 a. m. Saturday, Oct. 14th.

## Hundreds Enter Sky Ball Sectional Contests Here

List of Dealers Are Given in  
Northwest Area of  
City.

Increasing interest in The Times-Enquirer Sky Ball contest has made it necessary to launch an even broader program for the distribution of these balls and the little green rackets that accompany them.

The contest, scarcely a week old, has met with unprecedented response from boys and girls alike. Hundreds have entered the contest, each with a zeal that defies description, and with a grim determination to win the completely equipped bicycle, or at least one of the other valuable prizes.

To facilitate prospective contestants, the following is a partial list of Sky Ball dealers in the northwest section of the city:

Pourneau Hardware Company, 2064 North Illinois street; Muhl Drug Company, 2121 North Illinois street; Koshier Pharmacy No. 2, 3002 North Illinois street; Euland Pharmacy, 1611 North Illinois street; Bidau Pharmacy, 1602 Boulevard street; Edgemont Pharmacy, 2438 North western avenue; Berchert Hardware Company, 2636 Northwestern avenue; Thirtieth Street Pharmacy, 801 West Thirtieth street; Hyland Pharmacy and Hardware Store, 1921 Madison street; Grand Hardware Store, 1522 Main street; Speedy City, Kerr Pharmacy, Forty-second street and Boulevard place; Rector Pharmacy, Fortieth street and Boulevard place; Los Confectionery, 2924 West Sixteenth street; Indianapolis Pharmacy, 100 West Washington street; West-end Hardware Store, 2371 West Michigan street; Russel and Noe Pharmacy, 822 West Michigan street; Stockton Pharmacy, 729 West New York street; T. E. Dugan Pharmacy, 242 Blake street; Keystone Variety Store, 2516 West Sixteenth street; C. B. Lundy Pharmacy, 3343 West Tenth street; J. Lucid Pharmacy, 2724 West Tenth street; Manning Pharmacy, 2538 West Tenth street; O'Haver Pharmacy, 371 West Twenty-eighth street; Dickson Pharmacy, 644 North Harding street; Alexander Hardware and Electric Shop, 973 Belle View place; Ward Pharmacy, 2679 Northwestern avenue; A. D. Borley Pharmacy, 2602 North Capitol avenue; Walker Drug Company, 601 Indiana avenue; and A. E. Light's Pharmacy, Thirty-fourth street and Capitol avenue.

Additions to this list will be published in The Times at frequent intervals.

## PROFESSOR COMPOSES SCORE OF ORATORIO

Choice of 1,000 Voices Will Sing  
Music for Methodists.

By Times-Enquirer

GREENCASTLE, Ind., Oct. 3.—One thousand voices will sing an oratorio now being written by Professor Van Denman Thompson, member of the De Pauw university school of music faculty when this composition is heard for the first time at the sequel—centennial celebration of American Methodism in America. He has been working on the composition since last spring and does not expect to complete the orchestral score until next summer. The vocal score will be completed by Jan. 1 under the present schedule, he announced.

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**Today's  
Almanac**  
October 3  
1555—Cartier reaches site of Montreal.  
1800—George Bancroft, American historian, born.  
1933—N.R.A. appears to be a success, except for patriotic poems written about it.

## ACT TO END TRAFFIC HAZARDS NEAR BUTLER

Civic Group to Ask City Council to  
Install Traffic Signals.

The city council will be asked to eliminate traffic hazards in the vicinity of Butler university. It was announced last night following a meeting of officials of the university and representatives of the Butler-Fairview Civic League at the university.

The meeting was the outgrowth of a series of accidents which have caused one death and serious injury to others, including faculty members and students.

Representatives at the meeting voted to petition the council at its next meeting to make Forty-sixth street boulevard width and preferential and to install automatic traffic signals at Forty-sixth street and Capitol avenue and Forty-sixth and Meridian streets and to widen Clarendon road from the university campus south to Thirty-eighth street.

## FEDERATION TO ELECT North Side Clubs' Directors Will Meet at Rauh Library.

Officers of the North Side Federation of Clubs, Inc., will be elected at a meeting of the board of directors at 7:30 tonight in the Rauh memorial library, 3024 North Meridian street.

Directors to serve during the coming year were named at a meeting of the club last month.

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SALES  
Anyhow, the World Series will take care of the unemployment situation for about a week.

Now is the time to "winterize" your car. Let us change the oil and grease, replace radiator hose and fan belt, clean the radiator, dress the top, install new floor mats and running board tread, replace worn windshield wiper rubber, and install a heater. It means more efficient winter driving, and greater comfort. We'll be glad to call for and deliver your car. Just Phone Rely 8355.

**Statement has been made that the new City Budget has gone Mae West. But the taxpayers still insist that what they want is a budget with a slim, trim figure.**

**How long has it been since you inspected and tested your battery? Bring it in and let us test the cells, remove corrosion from the terminals, grease the posts, inspect the cables and add distilled water. It's a courtesy service that doesn't cost you a cent and you are under no obligation to buy anything from us.**

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## TAX GROUP TO APPEAL BUDGET TO STATE BODY

Gives Additional Support to  
Real Estate Board  
Plea.

Appeal to the state tax board for reduction in city, school and county tax rates to conform to the \$1.50 law will be taken by the Indiana Taxpayers' Association. Harry Miesse, secretary, announced today.

The pending association action lends additional support to the appeal planned by the property owners' division of the Indianapolis Real Estate Board, which several days ago declared a protest would be made.

Both organizations prepared information for consideration of officials and members of the county tax adjustment board, but the combined rates were lowered only 2 cents, when \$110,000 was cut from the county old-age pension fund.

Final date for the state board appeal is Saturday, but it is expected that the protest will be made by the middle of this week.

The state board, under the statutes establishing the \$1.50 maximum rate and the county adjustment boards, is the final resort on levy disputes, but remedy at law may be sought from the courts.

If the appeal to the state board is in vain, litigation will be started at once to prevent collection of any levy higher than \$1.50, real estate board officials announced several weeks ago.

## NATIONAL PARTY BOARD WILL HOLD MEETING

State Officers to Discuss Problems at  
Session Dec. 12.

Advisory board of the National party will hold its annual meeting Dec. 12, according to announcement today by Mabel La Rue, secretary.

State officers will meet with the board to discuss problems. Fred H. Kendall is Indiana's executive of the party.

Ballots for the referendum for National officers in 1934 are being prepared to be mailed to members of the party. F. X. Walter has been named national organizer of the party for Indiana, Michigan and Illinois.

## HEALTH CLUB TO MEET

Society to Open Third Season at  
Y. M. C. A. Building.

The Health Nature Club will open its third season on tomorrow and Thursday evenings at 8 at the Y. M. C. A. building, Pennsylvania and Vermont streets.

Dr. Joseph E. George, Indianapolis, its founder, will disclose the progress made in extending this club into a national organization. The public is invited.

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## Inside Dope

Safe Expert Gives Theory  
on Robberies.

MOST of the safe cracking cases in Indianapolis are inside jobs, declared Audley Dunham, safe expert and locksmith, yesterday at the Service Club luncheon.

Investigating many safe robberies in the city, Dunham said that he found the majority of them due either to the carelessness or the criminal intentions of some one on the inside.

Major-General Alexander Tut-till, head of the Arizona national guard, urged members of the club to recognize the need for national defense. The action of the government in cutting down the appropriation for the national guard may jeopardize the safety of the country in the future if there is an outbreak of hostilities, he said.

## SCIENTIFIC BOARD AIDS NRA PROGRAM

Six Advisory Committees  
Report on Policies.

By Science Service

WASHINGTON, Oct. 3.—President Roosevelt's science advisory board now has six committees of experts at work on questions referred to it by governmental agencies. President Karl T. Compton, board chairman, has announced.

As the actual problems upon which cabinet officers and other officials have pressing and of a confidential nature, Dr. Compton did not discuss details.

"Three general types of problems are under consideration," Dr. Compton said. "The first are questions of proper organization, or functioning, or program of the scientific and technical services of the government on which the advice of the board has been specifically requested."

"The second are similar matters which have come before the board, and which need attention in order that essential technical services shall not be impaired by economy, or unwise projects be supported, or may appear easily when the determining issues are obscure or highly technical."

"The third are basic considerations of the more permanent policy of the government toward scientific work."

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shrinkage in property values in this city, the northern Indiana section, and in Florida, Mr. Garvin said.

Drop in property values necessarily lowers the value of the securities, he pointed out.

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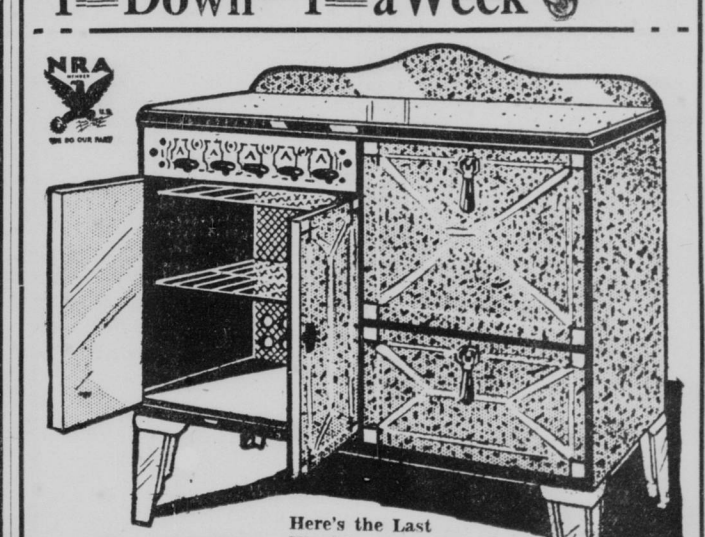
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