Greek colony 2,800 years ago, on the southern shore of the Black Sea in Asia Minor. The colony passed from Greece to Roman domination, then Byzantine, until the year 1204 A.D. when it proclaimed itself a new and independent empire. The empire lasted only until 1461, when Turkish hordes overran and conquered the country. So completely were people and culture absorbed that nothing of the old regime remained.

The significance of Trebizond, which Prof. Vasiliev stresses, is that it was essentially Greek in culture, from the beginning and straight through all its political history. Situated as it was in the path of well-trodden trade routes and military routes, Trebizond may have been a center from which Greek culture was transmitted to east and west, Prof. Vasiliev has reason to believe. Here, too, other cultures of the civilized world must have met and influences diffused.

Hence, Trebizond, so nearly lost and forgotten, may well be—says Prof. Vasiliev—the long sought link between western and eastern civilizations.

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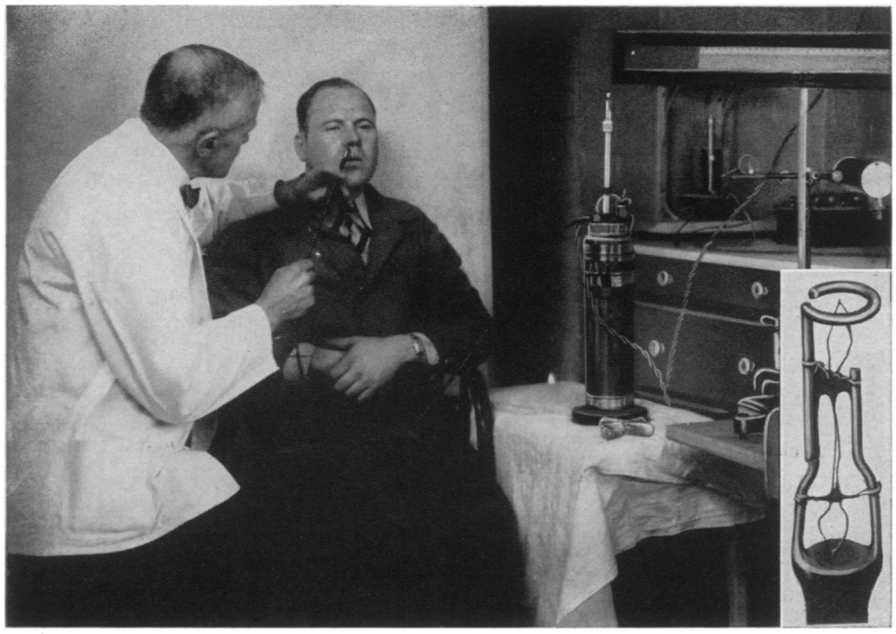

MEASURING THE WARMTH OF A BREATH

With an instrument using as its essential part two wires "fine as a woman's hair," Dr. Francis G. Benedict, director of the nutrition laboratory of the Carnegie Institution of Washington, measures temperature variations in the human breath. Inset: The "business end" of the instrument, enlarged so that the thermocouple wires may be seen.

PHYSIOLOGY

Warmth of Human Breath Now Precisely Measured

Delicate New Instrument Using Wires as Fine as Hair Thus Gives an Index to Temperature of Air in Lungs

THE lover, "sighing like furnace," immortalized in Shakespeare's seven ages of man, can at last have the calorific quality of these sighs accurately measured. So also can a temperature be taken on the gentler warmth of his lady's responding sighs, if any.

A scientific instrument so delicate that it can register the temperature changes that occur during a single breath was described by its originator, Dr. Francis G. Benedict, before the meeting of the National Academy of Sciences in Cleveland. Dr. Benedict is the director of the nutrition laboratory of the Carnegie Institution of Washington, with his headquarters in Boston.

The instrument is of the type known as a thermocouple. It consists essentially of a pair of slender wires of two different metals, delicately soldered together. Changes of temperature of the air surrounding this junction cause fluctuations in a current of electricity flowing through the instrument, and these can be translated into terms of temperature. The sensitiveness of any thermocouple is determined to a large extent by the slenderness of the wires; and Dr. Benedict describes those in his instrument as "fine as a woman's hair."

"We are able to record the temperature throughout an entire respiratory cycle," Dr. Benedict reported. "This is never a constant thing, but varies with the period of the respiratory cycle. The air inhaled passing over the junction cools it off very rapidly. Then as the air begins to be exhaled the temperature rises very rapidly and reaches approximate constancy, but this whole cycle is a matter of but two seconds.

"Even such a point as studying the temperature of the air leaving the nostril shows that there is a central air path which is rather warm, while a millimeter or two towards the side of the nostril gets you instantly into a cold zone, which may be an eddy current or still air, through which the warm blast passes out to the room.

"Theoretically there is no such thing as the temperature of expired air. There are two measurements of it, however. One is the maximum temperature of the expired air and the other is an attempt to measure the average temperature of expired air. This latter is extremely difficult and is proportional to the volume, and any temperature measured instantaneously must be applied to the volume at that moment leaving the mouth or nostril.

"It is in the first of these, however, that we are more particularly interested, that is, the maximum temperature of the expired air. This chiefly gives an index of the probable maximum temperature of the air in the lower part of the lungs. With careful control of respiration, that is, having a moderately deep inspiration taken, the breath held for about five seconds and then expelled through a tube, with the nose closed so that there is a slight resistance (and it takes about four seconds to expel it), one gets a very regular temperature. This has been found to be almost exactly one degree Centigrade below that of the body itself."

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