been stripped of its topsoil by erosion, with everything the topsoil contains: available elements of nutrition, both minor and major, all that man puts into the topsoil, and everything else. With so much eroded land around the earth, is there any wonder that malnutrition and famine are so widespread?

Development of land and water resources for agriculture, as by drainage or irrigation, will be governed primarily by factual, technological elements of land use and land maintenance rather than by promotional, exploitive, or political standards.

Also, people will learn that it is easier on machine, horse, and man to farm according to conservation standards than to follow haphazard methods not fitted to the land. Less fuel and time, for example, are required to operate a machine on the level, on the contour, than up and down slopes, and there is less wear on the machine.

The heavy costs of erosion, now running to approximately $3,844,000,000 a year in the United States alone, will be sharply cut.

Farming will become an expert profession; the inexpert and inept will be forced off the land. It is not impossible that the prospective farmer of the future will be required to satisfy society that he is qualified by training and experience to take on the trusteeship of a piece of productive land.

Most important, man will have learned the true value of his most precious natural resource. Tragically, throughout history, the land has been the most neglected.

On this job of safeguarding the land, thousands of farmers, in addition to various local, state, and federal agencies, are vigorously pushing ahead with the work. Each individual so engaged is a part of the biggest job, I think, in engineering and human affairs ever undertaken anywhere.

Do Certain Drinking Waters Favor Dental Caries?

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IT IS NOW GENERALLY RECOGNIZED that children who consume drinking waters containing from 1 to 2 ppm of fluoride (F) during the first decade of life have a lower experience with dental caries than do comparable children consuming nonfluoride waters.[1] It is the purpose of the present note to describe findings which suggest that drinking waters may contain deleterious factors which *favor* attack by dental decay.

During the winter and spring of 1946, with the cooperation of Dr. J. M. Wisan, chief of the Division of Dental Health, New Jersey Department of Health, and with the assistance of Dr. John F. Cody, senior assistant dental surgeon, U. S. Public Health Service, a total of more than 3,000 school children were examined in five communities of southern New Jersey. In three of these communities the water supplies contain from 1.4 to 2.2 ppm of fluorine, while the remaining two communities have water supplies which are considered fluorine-free. (The water analyses were made by Dr. Elias Elvove, senior chemist, U. S. Public Health Service.)

Of the approximately 3,000 children, 1,307 were born in localities outside the five communities studied, but had migrated at various ages into the several communities where the examinations were made. Those migrating into the fluorine communities and consuming the fluorine waters continuously since first arrival totaled 882, while those migrating into the nonfluorine communities and consuming the nonfluoride waters continuously totaled 425. What effect do these two types of drinking water have on the caries attack rate of the migrants?

TABLE 1

NUMBER OF DECAYED, MISSING, AND FILLED (DMF) TEETH PER 100 PERSON-YEARS OF AGE FOR MIGRANTS INTO FLUORIDE AND NONFLUORIDE AREAS OF NEW JERSEY*

Age (years) at time of survey	Area in New Jersey	Duration of exposure (years)		
		0–4	5–9	10–14
5–9	Fluoride	8.6	5.5	†
	Nonfluoride	19.3	20.3	†
10–14	Fluoride	36.7	22.2	15.5
	Nonfluoride	37.6	44.3	57.5
15–19	Fluoride	56.6	43.5	33.3
	Nonfluoride	49.6	61.1	70.0

* Data based on observation of 1,307 migrants of both sexes of specified ages and of specified duration of continuous exposure to the city water in the specified areas.

† No observations.

The caries attack rate for the present study is defined as the number of teeth of the permanent (second) dentition showing evidence of past or present attack by dental caries (decayed, missing, or filled) per 100 person-

[1] "Fluorine in Dental Public Health": Symposium-Conference of the New York Institute of Clinical Oral Pathology, October 30, 1944, New York City.

years of age. The findings are given in Table 1 and Fig. 1.

The data clearly show that the sooner after birth a child arrives in the fluoride area and begins a continuous exposure to fluoride water, the lower the caries attack rate. From these findings the conclusion is reached that, for migrants, drinking of fluoride waters is associated with lower dental caries attack rates. At the same age, migrants protected most are the earliest to arrive (longest exposed); those protected least are the most recent arrivals (shortest exposed).

In contrast, migrants into the nonfluoride area present a strikingly different picture. Among such migrants, those who are the most recent arrivals have the best teeth (lowest attack rate), while those who have been in the nonfluoride area the longest time have the worst teeth (highest attack rate).

These several findings strongly suggest that, just as there are factors in drinking water which favor *resistance* to tooth decay, there may be factors in drinking water which make the teeth *more vulnerable* to dental caries. Search for the principles in the nonfluoride waters responsible for the described effects is now actively under way. Superficial examination indicates that the nonfluoride waters in this area are acid enough to require treatment with alkali, and they contain excess iron to such an extent that aeration is required to remove it. Preliminary chemical analysis indicates an unusually high content of nitrates, constituting more than one-half of the fixed residue.

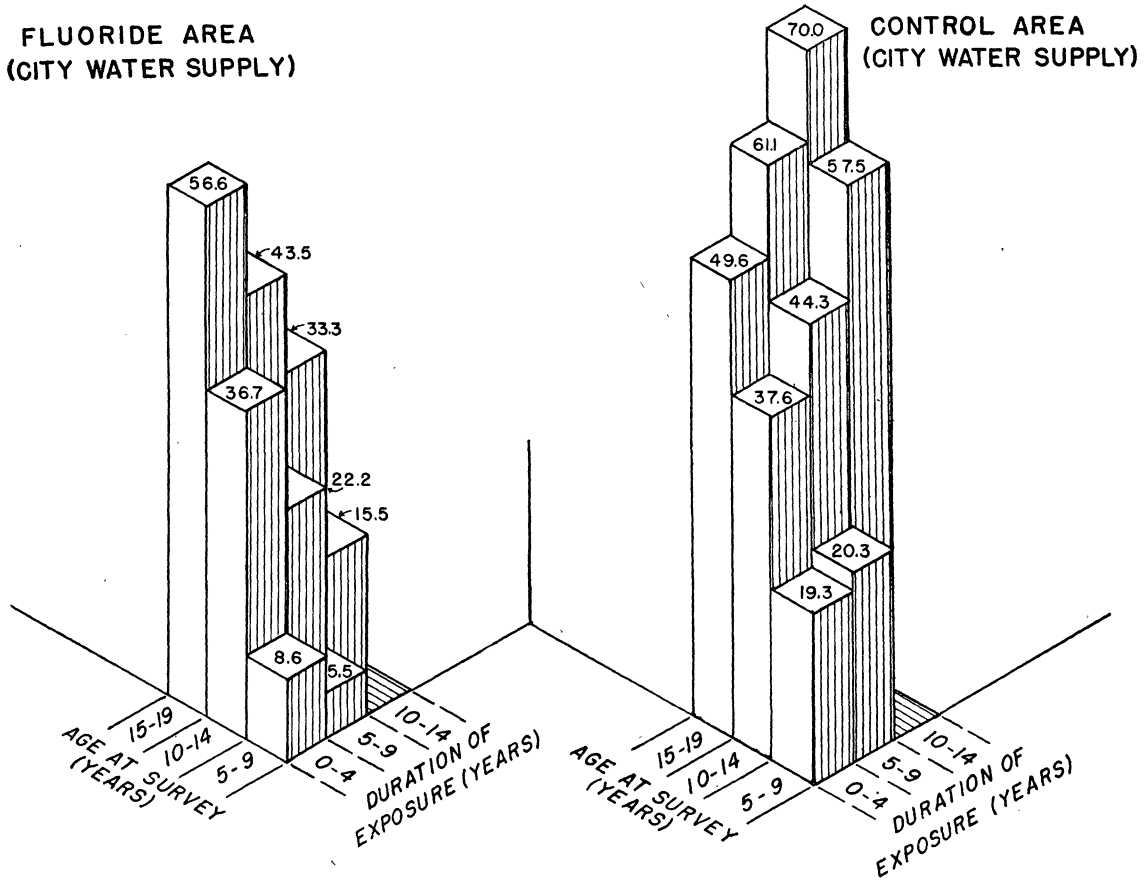

FIG. 1. Relationship between duration of exposure to fluoride or nonfluoride drinking water and number of decayed, missing, and filled (DMF) permanent teeth per 100 person-years of age in migrants of specified ages. (Numbers on tops of columns equal number of DMF permanent teeth per 100 person-years of age.)

Scanning Science —

It is reported by cablegram that Alfred Nobel, the engineer and chemist, who died at San Remo, Italy, on December 9th [*sic*], left a will bequeathing his entire fortune, amounting to about $10,000,000, to the Stockholm University.

—January 1, 1897