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# THE LAND UTILIZATION PROGRAM IN THE SOUTHERN GREAT PLAINS[1]

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THE circumstances which have brought about the present distressing condition in which much of the Southern Great Plains region finds itself have, of late, received a great amount of publicity and are so well known that I shall content myself with presenting merely an outline of the chain of circumstances which have transformed some of the finest grazing land in the country into what is now being called the "dust bowl."

It has been said that the history of the Southern Great Plains region has been, for the past 60 years, a story of exploitation. A half century of over-grazing by some cattlemen was bad enough, but the damage they did was nothing compared to what happened during the 1920's. High wheat prices, favorable moisture conditions, and the introduction of farm machinery did the job. The residents were too busy making money to remember that earlier experiments in speculative dryland farming had not produced altogether happy results. The inevitable drought finally came, and with it came disaster.

The settlement of much of the Great Plains took place in accordance with a policy which was destined to place the largest portion of the area under private control as expeditiously as possible. The Federal Government, the state and territorial governments, the railroads and the multitude of speculators all desired to bring settlers into the country. The Homestead Laws have had a great deal to do with hasty settlement.

[1] Address at the meeting of the Southwestern Division of the American Association for the Advancement of Science, Albuquerque, N. Mex., April 25, 1938.

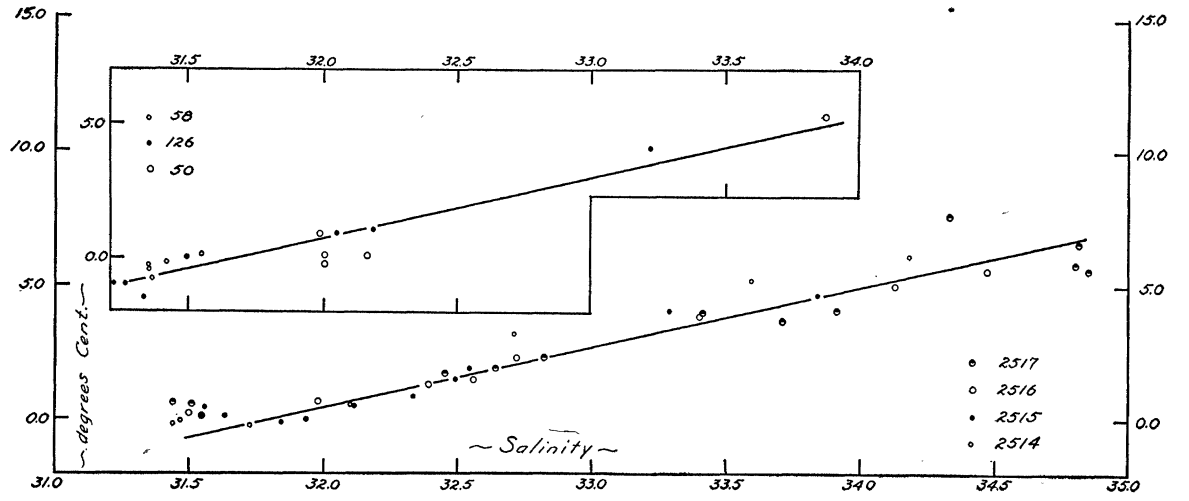


FIG. 1. T–S diagram of data from a section extending outwards from the coast in the vicinity of Halifax (station 58) to beyond the edge of the continental shelf (station 2,517).

upper seventy-five meters of water as calculated[4] are furnished in Table 1.

TABLE 1

VOLUME TRANSPORTS IN CU.M./SEC. IN THE UPPER SEVENTY-FIVE METERS BETWEEN PAIRS OF STATIONS, IN A SECTION EXTENDING FROM THE COAST (STATION 58) TO BEYOND THE EDGE OF THE CONTINENTAL SHELF (STATION 2517).

| Stations | 58–126 | 126–50 | 50–2514 | 2514–15 | 2515–16 | 2516–17 |
|---|---|---|---|---|---|---|
| | S.W. | S.W. | N.E. | N.E. | N.E. | S.W. |
| Transport | 103000 | 371000 | 25200 | 13200 | 53700 | 59000 |

Resultant between 58 and 2517 is S.W. 441000

On the basis of the straight line relationship suggested by the T–S diagram, it may be stated that the waters of the February section are the result of the mixture of two water masses "A" and "B," which may be described as follows:

A—water, of a salinity less than 32.50% and of a temperature less than 1.0° C., and

B = water, of a salinity greater than 35.00% and of a temperature greater than 7.0° C.

The calculated resultant volume transport indicates considerable resultant movement through the section to the southwest in the upper seventy-five meters—441,000 cu.m./sec. This transport is concerned with what we have termed the A-water. The volume transport, in the upper seventy-five meters, between stations 58 and 50 is 474,000 cu.m./sec. There is a preponderance of comparatively low temperature and low salinity water between these two stations. The supply of A-water to the area depends, therefore, upon this southwest transport. The transport between stations 126 and 50 represents velocities of as much as 7 or 8 nautical mi./day. Therefore, the supply of A-B water, if produced on the Scotian shelf, is dependent upon movement, and is comparatively independent of "winter chilling in situ." This A-B water possesses the temperature and salinity characteristics of what constitutes the "cold water layer" of the Scotian shelf. It can, therefore, be readily appreciated that the most important feature of the waters of the Scotian shelf—namely, the "cold water layer"—is dependent upon "water movements from the east." This thesis will be more fully developed in a publication to follow.

[4] A. E. Parr, *Bull. Bingham Ocean. Coll.*, 6: 3, 1–62, 1937.

H. B. HACHEY

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## BOOKS RECEIVED

*American Mathematical Society, Semicentennial Publications:* Vol. I, *History of the Society, 1888–1938.* RAYMOND C. ARCHIBALD. Pp. 262. Illustrated. Vol. II, *Addresses.* Pp. 315. The Society, New York.

HALL, EDWIN H. *A Dual Theory of Conduction in Metals.* Pp. viii + 170. Murray Printing Co., Cambridge, Mass. $2.00.

LANDIS, CARNEY and JAMES D. PAGE. *Modern Society and Mental Disease.* Pp. xi + 190. Farrar and Rinehart. $1.50.

LOEB, LEONARD B. *Atomic Structure.* Pp. xvi + 446. 111 figures. Wiley. $4.50.

MACARTNEY, WILLIAM N. *Fifty Years as a Country Doctor.* Pp. x + 584. Dutton. $3.50.

OBERHOLSER, HARRY C. *The Bird Life of Louisiana.* Bulletin 28. Pp. xii + 834. 45 plates. Department of Conservation of the State of Louisiana, New Orleans.

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SCHMIDT, CARL L. A., Editor. *The Chemistry of the Amino Acids and Proteins.* Pp. xxiv + 1031. Illustrated. Charles C. Thomas. $7.50.