QUALITATIVE ANALYSIS

Qualitative Analysis, A Brief Outline. By H. N. HOLMES. vii + 52 pp. The Macmillan Company. 1945. $1.00.

DR. HOLMES'S little volume adds another to the long list of outlines on qualitative analysis which has grown into an eloquent plea for the return of qualitative to the field of analytical chemistry. In common with similar outlines, the procedure may operate satisfactorily on relatively concentrated solutions; at the same time, some of the confirmatory tests will yield positive results with many distilled water supplies. Notable examples: on page 3, dissolution of sample is accomplished by evaporating with concentrated HCl, a procedure nearly certain to volatilize trivalent arsenic; on page 5, H_2S precipitation takes place in .3N acid, under conditions certainly not designed to precipitate quinquevalent arsenic; on page 13, dithizone is used as a confirmatory test for lead, a test so sensitive that lead would almost certainly be found in all unknowns.

In general, it can be said that the outline is not particularly better or worse than similar works in the field. Many instructors may find the brevity and conciseness to be advantageous.

FREDERICK R. DUKE

A COUNTRY MEDICAL COLLEGE

The Story of a Country Medical College. By FREDERICK C. WAITE. 213 pp. 9 illustrations. Vermont Historical Society, Montpelier. 1945.

THE Medical College at Woodstock, Vt., was a proprietary school founded in 1826 which lived happily for thirty-six years. Dr. Waite describes its career from birth to death.

The school was founded by Dr. Joseph A. Gallup, of Stonington, Conn. It started unpretentiously in the Eagle Hotel facing the Woodstock Common; presently moved westward into a "commodious brick building in a very eligible situation" on the edge of the village; was twice married—to speak figuratively—once to the Waterville College of Maine and once to Middlebury College of Vermont; and since neither union proved satisfactory, ended its days in independent bachelordom as they were begun.

Dr. Waite gives a delightful description of Dr. Gallup and of how he came to establish a medical school, and shows how medical schools such as this filled a useful purpose for a time but were doomed to obsolescence as cities grew, as means of communication advanced and, about all, as the belief became established that clinical teaching at the bedside is an essential part of medical education.

Dr. Waite also has performed a remarkable feat in the way of biographical labor. He has made a complete and accurate record of every one who had anything to do with the school—trustees, students and faculty—including the peripatetic professors. As they wandered over the country from school to school they helped to lay enduring cornerstones on which medical education of the future was to grow; an account of any of them is valuable.

As the story of this small medical college unfolds, it makes good reading. The book deserves popularity.

REGINALD FITZ

CLIMATE

Climate and the Energy of Nations. By S. F. MARKHAM. x + 236 pp. New York: Oxford University Press. 1944. $3.50.

THE first section of the book deals with the history of civilization and culture in relation to climate, which latter appears, in the author's opinion, to be the mightiest factor influencing human development.

First climatic changes within historical times are discussed and their eventual influence on man. The author, as a critical investigator, declines exaggerated estimates and must be commended for pointing out the progressive deterioration of the soil resulting from abuse and neglect. The discrimination between these processes and the effects of hypothetically assumed recent climatic changes is difficult. The average spatial distribution of climatic characteristics, *i.e.*, temperature and humidity, should yield the key. The author hints also at radiation, sunshine and wind, but makes little use of the available data because of the great complication, which arises if the number of factors, simultaneously considered, is increased. Speaking of radiation effects the author points to temperatures read from a thermometer, "when exposed to the rays of the midday sun." Such readings have, however, no scientific value. But this incorrectness is unimportant in view of the purpose of the book.

As the result of various bioclimatological investigations and of his own experience (gathered during widespread travels around the earth) the author concludes that "men work harder and more efficiently" when indoor temperatures are above 60° F and below 76° and relative humidities are between 40 per cent. and 70. The ideal outdoor climate is identically limited. Some allowance is made for clothing. In tropical regions the ideal temperature has to be somewhat lower on account of a special intensity of direct radiation. (Dubitable according to observations on Java, discussed by H. P. Berlage.) Altogether "early civilizations would have

had their birth and infancy slightly to the south of the 70° annual isotherm." In the section "Climate and History" a map shows an area from Egypt to India, with the course of the 70°-isotherm in rather rough strokes. Inserted names of countries and places indicate the spatial relations between the old high civilizations and the 70°-isotherm.

Starting from this map the essential historic part of the book discusses Egypt and India, Greece and Rome, Arabia and Islam, Spain and Portugal, Early Civilizations in America, China. This chapter is very attractive, full of interesting ideas and items not so well known. There it is demonstrated how close to the band of the 70° annual isotherm the old civilizations were developed. Culture was bound to an ideal climate, "where men neither shiver nor perspire when at rest." This definition of an ideal climate in relation to men is one of the fundamental ideas which run through the pages. As long as mankind was unable to control efficaciously climatic influences by clothing and heating devices colder climates caused a bitter struggle for life, disadvantageous for the development of philosophy, art and science. In hot and humid climates thinking and working are difficult too. Thus, an optimum zone for ancient cultures might exist, although there was not a zone of ideal climate. The Mediterranean climate, *e.g.*, is not at all ideal in summer. There it is terribly hot, low water supply, plenty of mosquitoes at nightfall, malaria (tropica), dysentery, etc. Even Italy has not an ideal climate. Whoever stood on the slopes of Monte Vesuvio in August has "perspired" although "at rest," and Goethe has "shivered" in Rome's winter in spite of braziers.

This brazier, one of the primitive heating devices, leads to the history of climatic controls discussed in the chapter, "The Coal Civilization." When climatic control set in, civilizations shifted to cooler regions. At the end of this chapter the author summarizes: "Throughout history it might be said that civilizations developed where a people enjoy for the moment the best natural climate and have the greatest control over it. . . ." Control over climate is, in the author's opinion, the first and fundamental factor which enables a nation to obtain and hold the hegemony. The reviewer cannot fully agree in this respect. Would it not be more intelligible to assume that a Roman Empire when arrived at hegemony developed intelligent and liberal statesmen who created thousands of artificially heated public baths and other excellent social institutions.

The second section deals with different statistics characterizing, first, the climate itself, second the "energy" of different nations, estimated by various tests. This part contains individual ideas as well as facts and statements of general interest. For comparison average temperatures and relative humidities for whole countries are needed. For this purpose a sort of settlement-averages are computed. ". . . in assessing the climate of Australia as a factor in human energy, it would be absurd to take one record from the extreme north, and others from the extreme east . . . since the bulk of the population is concentrated on the southeastern seaboard. I have therefore taken the six largest cities. . . ." From these the average temperatures and humidities are taken and an arithmetical mean, weighted according to the population is calculated. Appendix I gives a long valuable list of these country averages. The national energy is tested by means of: (1) death rates, (2) infantile mortality, (3) national income per head, (4) percentage of world trade reduced to ten millions population. The results from these tests yield a ranking list of countries, which is headed by New Zealand and Australia. "This list of leaders is in striking agreement with the list of countries . . . having an almost ideal summer and easily controlled spring, autumn and winter . . . and have sufficient supplies of coal or electricity to make heating methods accessible to their inhabitants at reasonable prices." This is the main result from objective statistics. The "Poor White" problem is also reduced to climatic influences.

Chapters XI, XII, XIII give applications of the methods in question to the British Isles and the United States. A 75°-isotherm divides the United States into a northern portion (including California) and a southern portion. Different maps show that infantile mortality is smaller, intelligence tests are higher, per capita income is greater in the northern portion. Naturally, there are some deviations and exceptions from this distribution, but it is interesting to note that, on the whole, it is possible for the author to give a survey of civilization from a climatological standpoint.

"Air-conditioning" and "What of the Future" conclude the book, which is perhaps not a book in current sense. It is much more an interesting investigation in book form, an investigation with weak and strong sides but always supported by good ideas and much enthusiasm.

V. CONRAD

CAMBRIDGE, MASS.

BOOKS RECEIVED

COMMITTEE ON POSTWAR TAX POLICY. *A Tax Program for a Solvent America.* Pp. x + 278. The Ronald Press Company. $3.00. 1945.

RUSSELL, HENRY NORRIS, RAYMOND SMITH DUGAN and JOHN QUINCY STEWART. *Astronomy; A Revision of Young's Manual of Astronomy; Volume I, The Solar System.* Revised Edition. Illustrated. Pp. xi + 470 + xxi. Ginn and Company. $3.00. 1945.