each case being the amount of $N/20$ NaOH in c.c., necessary to neutralize one cubic centimeter of the broth, phenolphthalein being used as an indicator. Gas formation coincided with acidity except in the case of dextrin. With this medium acidity was produced in every case, but gas was formed only by cultures 7, 8, 12, 14, 17 and 21.

Inspection of the table shows that all the cultures produced acid in the two monosaccharids; in the polysaccharids, lactose, maltose and xylose, and in the starch-like body, dextrin, the final acidity produced being notably uniform except in the case of dextrin. None of the cultures fermented inulin or nutrose actively, though slight acidity was recorded in one or two cases. No gas was formed in any case in these two media. The other four substances, the polysaccharids, saccharose and raffinose and the two alcohols show diagnostic differences. Seven of the cultures fermented all of these substances; one fermented all but dulcite; one all but saccharose; and one attacked raffinose and dulcite. These ten cultures may be roughly grouped together as organisms of high fermentative power. None of the other fifteen strains produced acid in either saccharose or raffinose. Smith[6] long ago pointed out that saccharose was attacked by some bacteria of the colon group, and not by others. Raffinose is evidently acted on by the same organisms which attack saccharose; and it is of interest to note that these two polysaccharides differ from lactose and maltose in lacking the aldehyde group which shows itself in the reduction of Fehling's solution. The group of organisms, which possess the power of fermenting saccharose, was distinguished by Dunham as *B. coli communior,* and by Ford as *B. communior,* the name *B. coli* being restricted to the type which fails to ferment saccharose. On this basis, Nos. 3, 5, 6, 11, 14, 15, 22, 23, 24 and 25 in the table would be related to *B. communior,* No. 11 varying in failing to act on saccharose, No. 14 failing to ferment saccharose and mannite and No. 15 failing to act on dulcite. Of these ten cultures, only No. 14 formed gas in dextrin.

[6] "Wilder Quarter-Century Book," Ithaca, 1893.

The other fifteen strains are typical *B. coli,* not attacking saccharose or raffinose; but among them several subgroups may be distinguished according to their action on the alcohols and dextrin. Six cultures, Nos. 2, 9, 13, 16, 18 and 20, fermented both alcohols but formed no gas in dextrin. Four cultures, Nos. 7, 12, 17 and 21, fermented both alcohols and did form gas in dextrin. Nos. 4 and 8 formed no acid in the alcohols. Nos. 1, 10 and 19 produced acid in dulcite but not in mannite and no gas in dextrin.

Whether these differences are of systematic significance can only be determined by the examination of a larger series of cultures. MacConkey,[7] in a study of 480 coli-like organisms from feces, found 120 which fermented neither saccharose nor dulcite, 178 which fermented dulcite but not saccharose, 110 which fermented both saccharose and dulcite and 72 which fermented saccharose but not dulcite. Our results, classified in the same way, and ignoring the action upon raffinose and mannite, show 2 cultures in the first group, 15 in the second, 7 in the third and 1 in the fourth.

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CURRENT NOTES ON METEOROLOGY AND CLIMATOLOGY

MONTHLY WEATHER REVIEW

No. 8, Vol. XXXV., *Monthly Weather Review,* 1907, contains the following articles:

G. N. Coffey: "Influence of Temperature and Moisture upon the Rate of Growth of Tobacco"; review of Bulletin 39, Bureau of Soils, on "Effect of Shading on Soil Conditions," dealing with experiments on tobacco grown under shade at Tariffville, Conn. The conclusion is: the soil moisture was always sufficient in quantity; the relative humidity had little, if any, influence on the rate of growth, but a decided rise or fall in temperature was followed by an acceleration or diminution, respectively, in the rate of growth of the plants.

W. A. Bentley: "Studies of Frost and Ice Crystals." This paper is intended as a com-

[7] *Journal of Hygiene,* V., 333.

panion memoir to, and an extension of, the same writer's "Studies among the Snow Crystals during the Winter of 1901–2," published in the *Monthly Weather Review*, 1902, XXX., 607–616, pls. I.–XXII.

J. G. C. Cottier: "A Summary of the History of the Resistance of Elastic Fluids"; a posthumous paper, published by permission of the literary executor of Mr. Cottier.

W. P. Stewart: "Local Forecasting at Escanaba, Mich."; brings out several points of local interest, and also the fact that, owing to the protection afforded by Lake Superior, cold waves are more severe to the east and west than at Escanaba.

Dr. Irving Langmuir: "Lightning Phenomena"; note on the curious "beaded trails" of several lightning flashes.

Professor Cleveland Abbe: "Salton Sea and Local Climate"; "the practical question is not how much the Salton Sea can affect climate, but how its waters can be used for irrigating the lands that surround it."

"Tornado at Maple Plain, Minn.," and "Hail-shooting in Italy"; short notes.

Dr. P. Polis: "The New Public Weather Service of Germany"; an interesting account by the head of the Aachen Observatory, who has lately been in the United States studying our weather service.

NILE FLOOD, 1906

An important report on "The Rains of the Nile Basin and the Nile Flood of 1906," by Capt. H. G. Lyons, director general of the Survey Department of Egypt (Cairo, 1907), has been received, and illustrates, in a most striking way, the progress which meteorology is making in Egypt. Here is a report of seventy pages, dealing with the rainfall of a region concerning which practically nothing was known a few years ago. And we learn from this same report that "it is also proposed to investigate the upper region of the monsoon current over the Sudan plains by means of kites carrying self-registering apparatus." The charts given by Capt. Lyons are of much interest, especially those of the seasonal and annual rainfall. These charts extend south to Lake Nyassa. Four isobaric charts cover an area between the equator and lat. 10° N., and east as far as long. 80° E.

SENSIBLE TEMPERATURES

A further contribution to the discussion concerning the "subjective" or "sensible" temperatures, *i. e.*, the temperatures which human beings actually feel, and which depend on temperature, humidity, wind, insolation, and many other factors, is contained in the *Meteorologische Zeitschrift* for October, 1907 (W. Knoche: "Die äquivalente Temperatur: ein einheitlicher Ausdruck der klimatischen Faktoren Lufttemperatur und Luftfeuchtigkeit"). This paper deals with the so-called "äquivalente Temperatur," as originally suggested by von Bezold. If we imagine the water vapor contents of unit volume (1 cu. m.) condensed, and the resulting latent heat of evaporation expended in warming a cubic meter of dry air to a certain temperature, the increase of temperature resulting from the latent heat of evaporation, added to the then prevailing air temperature, gives the "äquivalente Temperatur." This method of expressing the relation of temperature and humidity is followed out for several different stations and climates, and is found to give an excellent indication of the temperature which we actually feel.

R. DeC. Ward

TWO RECENT INTERNATIONAL SCIENTIFIC CONGRESSES[1]

In two congresses composed of members of such dissimilar outlooks as were the congresses at Heidelberg and Amsterdam the differences in the conduct of the congresses were very noticeable. It is generally admitted that in all scientific congresses there are two elements of value, the intellectual and the social. Both elements are to be combined in proper proportion to make the mixture most agreeable and profitable to the individual. In the congress of physiology most emphasis was placed on the presentation of papers; in the congress of psychiatry, neurology and psychology more time and opportunities were given

[1] Physiology, at Heidelberg, August 13–16; Psychiatry, Neurology and Psychology, at Amsterdam, September 2–7, 1907.