These symbols are at least in part applicable to human genetics, but they were drawn up with the needs of experimental genetics particularly in view; and it would be unwise to try to hasten their adoption in human genetics except where their use would help to clarify a particular genetical situation. While there are groups of human alleles which might with advantage receive this symbolization, there are many more where the question of allelomorphism is by no means settled, so that the bulk of such cases must await fuller knowledge.

While it is generally agreed that the AB blood groups are alleles, yet I think the choice of the blood groups as a field to which the new nomenclature should be applied was particularly unfortunate. In the first place, the final form which blood group genetics may take is by no means certain; for instance, as regards the nature of the O and the relations of the A_1, A_2, A_3 and B_1, B_2, B_3 sub-groups. This can perhaps be most clearly seen by consulting, for example, the recent paper of Hirszfeld and Kostuch.[4]

A decade ago anthropologists and serologists adopted internationally the symbols O, A, B, AB for the four human blood groups. These are preferable to the I, II, III, IV schemes of Moss and of Jansky, which partly conflict with each other and have been the source of serious and even fatal errors in connection with blood transfusion in hospitals. The medical profession appears to be gradually giving up this number system and adopting the safer and better ABO system, which is sufficiently genetical for their purposes. It can not be expected that medical practitioners and anthropologists will have an expert knowledge of genetics, although a general knowledge is of course highly desirable.

Geneticists should therefore endeavor to hasten the spread of the ABO system in medical circles. The adoption by geneticists of a new and obscure set of symbols for the blood groups would defeat this end and make their papers on the subject unintelligible to the anthropologists and medical men, for whom the genetical aspects of blood group work should have the greatest appeal.

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SOME FIELD OBSERVATIONS BEARING ON THE ORIGIN OF THE MORRISON "GASTROLITHS"

DESPITE numerous finds of genuine gastroliths in association with remains of fossil vertebrates, a causal relationship between the dinosaurs and so-called "gizzard-stones" of the Morrison formation remains doubtful. The origin of these brilliantly colored and highly polished stones has been speculated upon by numerous observers and opinion has been divided among various theories, not the least attractive and popular of which attributes the polish to the mechanical and chemical action of dinosaurian digestion.

Recent field work, sponsored by the William Berryman Scott Research Fund, on the larger problems of Morrison stratigraphy over extensive areas in Utah, Colorado and southern Wyoming has brought out several facts regarding the distribution and occurrence of these stones which may be significant:

(*a*) Within the Morrison the association of dinosaur remains and "gastroliths" seems entirely fortuitous. Where tremendous quantities of fossil bones are found as at the Dinosaur National Monument, near Jensen, Utah; at the Malcolm Lloyd Jr. quarry near Cleveland, Utah, and at the Como Bluff and Bone Cabin quarries in southern Wyoming there is no unusual concentration of "gastroliths." In fact, during recent excavations at the Lloyd quarry not a single stomach-stone was found among the remains of a dozen or more dinosaurs, including Antrodemus, Ceratosaurus, Stegosaurus, Ornitholestes, Camptosaurus and two large sauropods. Furthermore, great quantities of "gastroliths" may occur, constituting at places a veritable conglomerate, without fossil bones being in evidence.

(*b*) In the Colorado Plateau the "gastroliths" occur only in the upper portion of the Morrison in beds which are relatively barren of fossils and which show some lithic differences from the underlying fossiliferous portion of that formation. "Gastroliths" are found most abundantly in thin zones or "stringers" near the base of this upper unit. The rock types making up the "gastroliths" are identical with those found in a persistent but thin conglomerate between the two units just mentioned and the inference seems logical that regardless of the origin of their polish the stones were derived from the same source as the conglomerate or from the conglomerate itself.

(*c*) The distribution of the "gastroliths" is by no means coextensive with the Morrison formation as none were found in that formation south of a line running roughly from the Henry Mountains, Utah, to the Black Canyon of the Gunnison River in Colorado. Likewise a hurried search failed to reveal any east of the Front Range. The geographical distribution seems to coincide quite closely with that of the conglomerate noted above. Dinosaur bones, however, are present in the usual numbers in regions where "gastroliths" are absent.

The facts listed above, in conjunction with others apparent from a close comparison of the "gastroliths" of the Morrison with undoubted stomach-stones, seem unfavorable to the dinosaur hypothesis, but it is admitted that there are many peculiar facts of distribution which are difficult to explain by any theory.

[4] Über das Wesen der Blutgruppe O. *Klin. Wochenschr.*, 17: 1047–51, 1938.

The field relationships suggest that the "gastroliths" were originally stream or pediment gravels and that the high polish was superimposed by the action of wind-blown dust upon surfaces already smoothed and rounded by other agencies. It should be noted that the Morrison shales are highly bentonitic and must have contained a high proportion of sharp, volcanic, glass shards which would have been very potent abrasives at the time of deposition. The stones probably accumulated by deflation in the same manner as modern "desert armor" and the bright coloration may be due to prolonged exposure to weathering. The lack of faceting, case hardening and pitting is by no means a fatal objection as these seem to result from local and specialized conditions and do not always accompany wind erosion.

Until a connection between the dinosaurs and these highly polished stones is proved it seems advisable to abandon the term "gastroliths" in favor of some non-committal designation. The term "Morrison stones" may be used in a sense analogous to the "Gobi stones" of the Asiatic Irdin Manha formation, the two occurrences being in many ways similar.

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THE SMYRNA FIG IN CALIFORNIA

IN SCIENCE (94: 339), it is stated that Dr. Gustav Eisen introduced the Smyrna fig into California. This is an error. Cuttings from Smyrna were brought into California at the instance of G. P. Rixford, in 1880, and also in much earlier years, perhaps in the 1850's, by other persons of whom there is no record. None of these trees matured fruit, which led Dr. Eisen to believe the failure was due to lack of pollination (caprification), a surmise confirmed by an experiment in artificial pollination first made by George C. Roeding at Fresno in 1890. Pollen from a caprifig tree was inserted with a goose quill in young figs of a Smyrna tree. The figs matured and became fully ripe. Eisen himself, in 1895, carried pollen from caprifigs, in a sealed glass container, to Smyrna fig trees two hundred miles distant in the upper San Joaquin Valley in Kern County and pollinated young figs. This experiment proved completely the need of caprification. In the course of time Eisen and his former associate, Mr. Roeding, interested the United States Department of Agriculture in the problem and through the department's agents a colony of the blastophaga wasp was sent from Algiers to California in 1898. The introduction of the wasp proved successful and the growing of Smyrna figs was soon established on a commercial basis. Blastophagae had been previously introduced by fig growers but apparently were a failure.

Eisen's monograph on the biology of the fig[1] may be considered classical and is still consulted by students and by horticulturists.

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AEDES AEGYPTI LINNAEUS, THE YELLOW FEVER MOSQUITO, IN CENTRAL MISSOURI

LATE in September mosquito larvae were found in a small aquarium in the office of the State Health Commissioner. These were taken to the Laboratory of the State Department of Health where, on October 4, 1941, an adult emerged that proved to be of this species.

This location, Jefferson City, is near the center of the state, about 38.6 degrees north latitude, and probably is the "fartherest north" for the species in Missouri.

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QUOTATIONS

THE WORK OF THE ROCKEFELLER FOUNDATION IN BRAZIL

THE twenty-fifth anniversary of the beginning of the work of the International Health Board of the Rockefeller Foundation in Brazil has been enthusiastically commemorated. Besides articles in newspapers and in medical magazines, some medical associations have held special meetings to honor that humanitarian institution. The most brilliant of these meetings was one promoted by the oldest medical association of Brazil, the National Academy of Medicine. Under the chairmanship of Professor Aloysio de Castro of the University of Rio de Janeiro Medical School the academy held a crowded meeting to honor the Rockefeller Foundation in the person of Dr. Fred L. Soper, its representative in Brazil. The principal speaker was Dr. Afranio Peixoto, professor of hygiene at the university, who reviewed the most salient facts in the services rendered by the foundation especially in the fields of medical education, public health nursing, instruction of sanitarians and the investigation and control of yellow fever, malaria and hookworm disease. Two medical commissions were sent to Brazil early in 1916, the first under Major

[1] Proceedings of the California Academy of Sciences, ser. 2, 5: 897–1003, 1896.