hesion reactions, suggesting that antibody to cardiolipin can participate in the adhesion. On the other hand, human syphilitic serums that were rendered negative to standard flocculation tests by absorption with cardiolipin remained adhesion positive, some of the absorbed serums showing a decrease in the degree of adhesion and others not. Also, some human serums from old, treated cases of syphilis that gave negative flocculation tests but positive treponemal immobilization tests showed adhesion. These observations probably indicate that more than a single antibody is capable of inducing adhesion.

The presence of antibody against bacterial indicator particles such as *S. pyogenes, S. lactis,* or *E. coli* did not interfere with adhesion to the treponemes. This was determined by comparison of adhesion with individual syphilitic serums before and after absorption with bacteria. A high-titer agglutinating rabbit antiserum against *E. coli* caused no adhesion between *E. coli* and *T. pallidum,* either with or without added guinea pig serum, and numerous nonsyphilitic human serums that contained *E. coli* or streptococcal agglutinins did not cause adhesion of *T. pallidum* to the respective bacteria. Thus, while the bacteria can serve in the treponemal system, the treponemes do not seem to act readily as adhering particles in the bacterial antibody serums.

Nelson (*4*) has described as "immune adherence" a reaction involving a mixture of immune serum, human red cells, complement, and treponemes in which, presumably, adhesion is measured indirectly by the disappearance of treponemes from the suspension after centrifugation. This reaction was differentiated from the Rieckenberg phenomenon by Nelson on the basis of its occurrence only with human erythrocytes and its failure with platelets, white cells, charcoal, magnesium silicate, and suspensions of *Candida albicans.* In this connection, it is pertinent to recall the earlier work of English investigators (*8*) who labeled as "red cell adhesion" their observations of the regular ability of primate red cells to adhere to trypanosomes in the presence of complement and specific antibody. These workers and Raffel (*9*) found only an occasional rabbit, guinea pig, or rat that possessed erythrocytes capable of adhesion in the trypanosomal system, but they considered "red cell adhesion" to be an example of Rieckenberg adhesion. We have not seen unaltered sheep, rabbit, guinea pig, or chicken red cells adherent to *T. pallidum,* but these various kinds of cells, after lysis with distilled water, do yield ghosts that readily act as adhering particles. Our observations and the literature cited make it logical to conclude that "immune adherence" with human red cells is simply a particular case of a general phenomenon—namely, adhesion of the Rieckenberg type.

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9 December 1955

Duttonite, New Vanadium Mineral from Peanut Mine, Montrose County, Colorado

Duttonite, $VO(OH)_2$, is a new mineral found in the Peanut Mine, Montrose County, Colo. (*1*). It is named in honor of Clarence Edward Dutton (1841–1912), who was one of the first geologists working in the Colorado Plateau region and who was a member of the U.S. Geological Survey from 1879 to 1891. The Peanut Mine is a vanadium-uranium deposit in the upper ore-bearing sandstone of the Salt Wash sandstone member of the Morrison formation of late Jurassic age. Ore bodies occur along the flanks of a buried channel and are localized by a crossbedding structure that is associated with the channels.

Most of the ore at the Peanut Mine is unoxidized, and the principal ore minerals are montroseite, paramontroseite (*2*), vanadiferous silicates, uraninite, and coffinite. The ore minerals impregnate sandstone and replace coalified wood. Along fractures in the ore-bearing sandstone there is commonly a thin massive coating of an undescribed vanadium oxide. On this coating duttonite occurs as crusts and coatings of randomly oriented, 6-sided platy crystals. The crystals range in size from extremely minute to about 0.5 mm in the longest dimension. Associated minerals are melanovanadite and abundant crystals of hexagonal native selenium.

Duttonite is light brown and has a vitreous luster. The hardness is about 2.5. The calculated specific gravity is 3.24. The optical properties of duttonite indicate orthorhombic symmetry. It is biaxial positive; 2V is about 60°; and the dispersion is $r < v$, moderate. $X = a$ (pale pinkish brown); $Y = c$ (pale yellow brown); $Z = b$ (pale brown); $\alpha = 1.810 \pm 0.003$; $\beta = 1.900 \pm 0.003$; and $\gamma > 2.01$. The optical properties of duttonite are very close to those of uvanite (*3*), but the two minerals differ both in composition and occurrence. Duttonite is an early oxidation product of montroseite ore, whereas uvanite ($U_2V_6O_{21} \cdot 15H_2O$) occurs in highly oxidized ore.

The chemical analysis by one of us (R. M.) shows V_2O_3, 2.6 percent; V_2O_4, 75.3 percent; FeO, 0.4 percent; H_2O, 18.1 percent; and insoluble material, 4.2 percent; total, 100.6 percent. The chemical analysis confirms the formula $VO(OH)_2$ that was first arrived at through crystal structure determination (*4*).

The unit-cell constants of duttonite were measured by M. E. Mrose of the U.S. Geological Survey as follows: monoclinic, $a_0 = 8.80 \pm 0.02$ A, $b_0 = 3.95 \pm 0.01$ A, $c_0 = 5.96 \pm 0.02$ A, $\beta = 90°\ 40' \pm 5'$. The space group is $I\,2/c$, (C_{2h}^6), the cell contents are 4 $VO(OH)_2$. The crystals are strongly pseudoorthorhombic, and the structure departs only slightly from the space group Imcm.

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References and Notes

1. Duttonite was found by one of us (C.H.R.) in the course of a study of the geology and mineralogy of the Peanut Mine as part of the program being conducted by the U.S. Geological Survey on behalf of the Division of Raw Materials of the U.S. Atomic Energy Commission. The publication of this paper was authorized by the director, U.S. Geological Survey.
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21 November 1955

Lack of Recognition of Foreign Works

I have noted with increasing alarm a tendency of American scientists to practice a form of nationalism that scarce does credit to science. I refer to refer-

Table 1. References to foreign works by geologists from various countries.

Nationality	Books (No.)	Percentage frequency of references to foreign workers					
		10 (%)	11–20 (%)	21–30 (%)	31–40 (%)	41–50 (%)	51 (%)
American	100	75	18	5	2		
British	100	11	36	33	9	5	6
German	50	8	54	18	8	4	8
French	50	10	24	30	18	4	
Dutch	50	4	8	16	8	16	48
Swiss	50	14	12	18	22	14	20

ences made in publications that show an amazing lack of recognition of foreign works. Admittedly on a national population basis, America likely has more scientists than other nations, but then we are not concerned with mere quantities.

I have gone carefully through 100 American textbooks and standard references in the field of geology, to ascertain the listings given of foreign workers—not necessarily foreign publications. Comparisons were made with 100 British books and 50 each from Germany, France, Holland, and Switzerland. The results are shown in Table 1.

A glance through the respective journals of these countries illustrates a more serious provincial attitude on the part of American geologists. It is idle to harp about the Europeans' greater facility in languages and at the same time insist that all American science students be forced to learn some European language, at least for reading purposes.

During recent years, in visiting many universities in Europe and Asia, I have seen in various science departments wall charts, published in the United States, depicting such things as the divisions of the science of physics, highlights in the history of biological evolutionary thought, discoverers in the field of electromagnetism, and so on. In one chart showing discoverers in that particular science field, I noted that of 94 names listed, a mere 74 were Americans, and not a single Britisher was mentioned. It is bad enough that American students should be misinformed to this extent, but doubly serious when foreign students are handed this sort of propaganda. Although I do not wish to belittle the contribution of America toward science in general and geology in particular, is it not time to place such contribution in its true perspective, such as Marie Curie working in a cold, leaking, dingy laboratory on an infinitesimally small budget versus America with its air-cooled, centrally heated, luxuriously furnished laboratory struggling along on a $10-million grant?

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21 February 1956

Serum Protein Concentrations in the North American Negroid

Anthropological and medical differences between Negroids and Caucasoids have been the subject of much medical discussion (*1*). Studies on the chemical composition of blood have shown no consistent variation except in the concentrations of plasma proteins. Surveys in Africa (*2*), Jamaica (*3*), and the United States (*4*) report that Negroids have lower serum albumin and higher serum globulin values than Caucasoids residing in the same region. Male Caucasoids were found to have higher serum cholinesterase activities than a comparable group of North American Negroids (*5*). The increase in the globulins has been mainly in the gamma globulin fraction. These differences have been attributed to infection with parasitic or tropical disease, liver disease, malnutrition, and possibly a genetic variance.

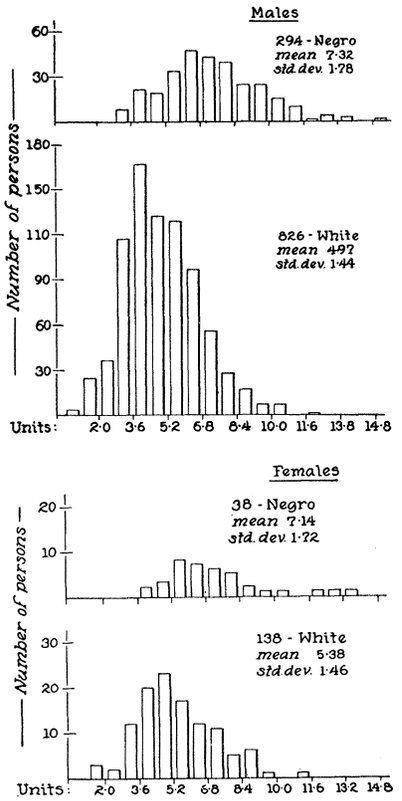

Fig. 1. Serum gamma globulin of Negroids and Caucasoids measured as zinc turbidity and expressed as Shank-Hoagland units.

A blood-donor screening study for the detection of carriers of viral hepatitis in progress at the Hospital of the University of Pennsylvania provided an opportunity for comparison of Negroids and Caucasoids living in a nontropical area (*6*). Thirty-six percent of the Negroids and 63 percent of the Caucasoid donors were born, and had always lived, in the vicinity of Philadelphia. The donors, who ranged in age from 18 to 59 years, were accepted only if there was no history of jaundice, liver disease, syphilis, or serious systemic illness, and if the hemoglobin was greater than 12.5 g percent. Samples of blood were collected, and the following tests were performed (*7*): serological tests for syphilis, total and prompt direct (*1′*) serum bilirubin, thymol turbidity and flocculation, cephalin-cholesterol flocculation, and zinc sulfate turbidity (*6, 8*).

The distribution of values for the zinc turbidity in Shank-Hoagland units of those donors who had normal results for all other tests are plotted in Fig. 1. The mean value for the Negroids is much higher than that of the Caucasoids ($p < 0.001$). This difference is present irrespective of age or sex. Among the Caucasoids, the females have a significantly higher mean than the males.

In addition to the zinc turbidity test of Kunkel, which correlates with the concentration of the gamma globulin fraction (*9*), two other methods of measuring gamma globulin were used. Analysis of the serum of 31 Caucasoid and 25 Negroid donors by the ammonium sulfate turbidity test (*10*) gave values of 2.50 ± 0.16 units for the Caucasoid and 2.82 ± 0.23 units for the Negroid serums ($p < 0.01$). Zone electrophoresis (*11*) of the serums of 45 Caucasoids showed a mean of 18.04 ± 4.41 percent of gamma globulin and 21.75 ± 5.09 percent for the 45 Negroids tested ($p < 0.01$). The Negroids also had a lower mean concentration of serum albumin ($p < 0.05$).

The finding of significantly higher mean concentrations of gamma globulin by these methods agrees with previous reports. However, the subjects in the present study were all voluntary donors who came from localities in which both racial groups were living in a similar environment in a region where there is no general malnutrition or endemic disease. No abnormalities in liver function were detectable by a series of tests. This suggests that the higher mean concentrations of gamma globulin found in Negroids may be the result of a genetic factor. The differences shown by the North American Negroid population are large enough to require the use of separate standard