as a method of malaria control. One of the chief reasons for doubting the effectiveness of such a method has been the belief that *Anopheles* mosquitoes have definite blood-meal preferences. The anophelines which are effective carriers of malaria have usually seemed to have a distinct preference for human blood. Poor carriers have appeared to prefer animal blood. Precipitin tests have lent weight to this belief.

During the first four months of 1933, the staff engaged in malaria investigations[1] in the Philippine Islands made collections of adult *Anopheles* mosquitoes of the *funestus-minimus* subgroup in the municipality of Aritao in Nueva Vizcaya. The population of the area in which the collections were made was about 800. In the Philippines, as has previously been reported,[2] these mosquitoes can rarely be found inside or under houses. They are, as a rule, seen only out-of-doors, in natural resting places, such as undercut stream banks, where daytime catches can easily be made. Recently, collections of these mosquitoes were made at night, while the insects were feeding on carabaos.

The last catch dissected up to the present time numbered 705 mosquitoes. Of these, 133 were caught along stream banks by day, and 572 on carabáos at night. There were five infected mosquitoes among them. In one (*A. filipinae*) the gut only was positive; in one (*A. minimus v. flavirostris*) the glands only were postive; in one (*A. minimus v. flavirostris*) the glands were positive, but the stomach was not successfully dissected; in two (*A. minimus v. flavirostris*) both gut and glands were infected. One mosquito in which gut and glands were infected was caught along a stream bank. The other four infected insects were caught at night while feeding on carabaos.

Here, then, is strongly presumptive information to the effect that mosquitoes which had first taken blood from an infected human were attracted to carabaos for a subsequent feeding at a time when they were potentially dangerous to man. We have not been able to rule out absolutely the possibility of simian malaria or of carabao infections. Both are highly doubtful. Monkeys are very uncommon in Aritao, and the literature has no records of malaria infection in carabaos. This matter is being checked.

The possible usefulness of an animal barrier would seem to be indicated by these findings. But such barriers uncontrolled are of little use, because in the town of Aritao the blood smear index for malaria is about 30 per cent. A detailed report on this subject will be published eventually.

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[1] The malaria investigations are jointly supported by the International Health Division of The Rockefeller Foundation and the Bureau of Science of the Insular Government of the Philippines.

[2] P. F. Russell, *Philippine Journal of Science*, 46: 639–649, 1931; and P. F. Russell, *Proceedings* of the Entomological Society of Washington, 34: 129–138, 1932.

## "MAGMATISM"

THERE seems to be no adequate term for expressing the phenomena attending the primary placement of igneous material both within the earth's crust and upon its surface. In most text-books, the word "vulcanism" (or "volcanism") is made to answer for igneous processes, whether they are deep-seated or at the surface. This term seems inappropriate, since the idea implied applies particularly to volcanoes. The correlative words "volcanic" and "plutonic" are sometimes used to express the place or mode of occurrence of igneous rocks, according to whether they be extrusive or intrusive. Is it any more appropriate to use the word vulcanism than plutonism, for general igneous activities? The one might well be used for subsurface igneous processes; the other, for supersurface processes.

The writer has felt the need of a single term which might do for all igneous processes—to be used in much the same way as vulcanism is now used. For this purpose, he suggests the word "magmatism." The idea of this word is to represent the collective phenomena of volcanoes and their dispositional processes; dikes, laccoliths, batholiths, etc., in respect to the way they were formed—any and all movement of magma and its subsequent primary disposal as solidified crustal material. The old terms "vulcanism" and "plutonism" then could be used if desired, to distinguish the two types of magmatism.

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## THE REVERSAL OF THE SODIUM LINE, "D," IN FIREWORKS

SOME years ago the writer noticed, at a glass factory in West Virginia, the reversal of the sodium line, "D," and published a note thereon in SCIENCE. Now we are able to supplement this occurrence in the rather unusual setting of fireworks. It happened at the recent "Fourth," at the beautiful grounds of the Kirtland Country Club, near Mentor, Ohio. The exhibits, while not so extensive or elaborate as those at the Washington inaugurals or at Coney Island, were unique and beautiful. Some of them were of a type new to me; and several gave spectra largely for the sodium compounds. I was using my pocket direct-vision, made by Franz Schmidt & Haensen, of Berlin, Germany. On three occasions, the bright sodium line changed suddenly from the bright form to the dark reversal. I was confirmed in my observation by a friend who sat near me, who saw it all clearly, both the bright and the dark line. The occurrence is un-