College and Columbia University. The editorial board is announced to be the same as last year, including Professors Cassius Jackson Keyser and David Eugene Smith, of Columbia University; Professor Raymond Clare Archibald, of Brown University; Professor Louis Charles Karpinski, of the University of Michigan; Professor Lao Genevra Simons, of Hunter College, and Professor Gino Loria, of the University of Genoa. "Notes and Queries" will again be edited by Professor Archibald. It is also expected to print hitherto unpublished manuscripts now in university and private libraries in this country.

DISCUSSION

AGE OF FITCHBURG GRANITE

WHEN the Tufts group visited the quarries at Fitchburg last spring they were particularly asked to keep an eye out for radio-active minerals which one can recognize by the cracks which radiate from them. A number of specimens were obtained, but they were mostly allanite.

One piece, however, the spintharioscope showed to be much more radio-active and proved to be uraninite. It was only about four millimeters in diameter, but I was able to dig out about 30 milligrams and send to Dr. Friedrich Hecht, 38 Währingerstrasse, Vienna, Austria, who was able to make on 18 milligrams by micro-chemical methods the accompanying analysis. I am sending this to SCIENCE for a number of reasons.

MICROANALYSIS OF FITCHBURG URANINITE

Used for total analysis : 18 mg.
Used for determination of H_2O: 6 mg.

	Per cent.
Insoluble residue	27.39
(of which SiO_2)	(25.48)
PbO	2.72
(Pb)	(2.52)
$Fe_2O_3 + Al_2O_3$	not determined
Rare earths	1.85
ThO_2	3.86
(Th)	(3.39)
U_3O_8	59.19
(U)	(50.20)
CaO	0.84
MgO	0.15
H_2O (−110°)	0.27
H_2O (110–300°)	2.90
Loss on ignition	.....
Alkalies	present, but not determined

$Pb/U + 0.25.Th = 0.049_4$

Analysts: F. Hecht and Edith Kroupa.

There is so little Th that using the factor 0.36 instead of 0.25 will make no appreciable difference. Allowing for AcD and ThD we would get an age:
$15{,}600 \log(1 + (RaG = 2.37)/(U = 50)) = 366$ million years

In the first place, I should like to call attention to the fact that with micro-chemical methods a geologically useful analysis can be made on such small quantities, and I think Dr. Hecht would be glad to arrange for such analyses by coworkers for others, and by no means solely on radioactive minerals. Methods have been developed for a variety of compounds.

In the second place the analysis indicates that this granite is much older than I had expected (360 million years) and akin to that at Branchville, Conn., from which a uraninite has been analyzed by Hillebrand (N.R.C. Bulletin 80, p. 341). This, however, agrees with what Professor Berkey had thought and shows what important help may be given by such research.

Finally, as one swallow does not make a summer it would be desirable to have analyses made of other such minerals, and I would like to call attention to the possibility of so doing even from such small quantities. It would be very interesting to have analyses from New Hampshire granites, and such minerals should be found in the quarries north of Keene.

ALFRED C. LANE,
Chairman, N.R.C. Committee on the Measurement of Geological Time

"EXPANSION AND CONTRACTION" OF CHROMATOPHORES

SUMNER,[1] in a recent article in this journal, contends that a large majority of investigators interested in changes in color in vertebrates hold that the movement of pigment granules in the chromatophores is not due to "expansion or contraction" of the chromatophores, but that they continue to use this expression in spite of the fact that its meaning is not at all in accord with their view. To remedy this incongruous situation, he proposes to substitute "chromatosome" (pigment body) for "chromatophore." He says: "My suggestion is that we continue to employ the terms 'expansion' and 'contraction,' since something obviously does expand and contract, but that we credit these movements to the things that actually do expand and contract, namely, the pigment-masses within the cells."

It is well known that the colored substance in the chromatophores in the vertebrates is in the form of numerous discrete granules and that these granules move on definite paths through the cytoplasm out into the various branches of the chromatophores under certain conditions, and on the same paths back into

[1] F. B. Sumner, "Why Do We Persist in Talking about the 'Expansion' and 'Contraction' of Chromatophores?" SCIENCE, 78: 283–4, 1933.