phores (a recognized source of tyrosinase) do not yield a product having activity. The enzyme is not activated by copper ions and is completely inactivated at pH values higher than 7. A study of the action of various enzyme inhibitors supports the nonidentity of this enzyme with any of the known copper-containing enzymes.

Studies are now in progress on the effect of this enzymatic reaction on the structure of the lignin molecule and on further purification of the enzyme. A detailed account of the work summarized here will be published in another journal.

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The Hemostatic Activity of Amniotic Fluid[1]

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During studies of the coagulation mechanism in pregnancy it seemed of interest to investigate the action of amniotic fluid. This fluid was collected in a sterile syringe by aspirating the intact membranes of women in labor. The Lee and White clotting test was done, using four 12 × 75-mm glass tubes. One-tenth cc of amniotic fluid was added to each of two tubes and an equal amount of saline to each of two control tubes. Freshly drawn venous blood was added in 2-cc amounts to all four tubes, which were then incubated at 37° C. The end point taken was that at which both tubes of each set could be inverted completely without spilling. Results are shown in Table 1.

It can be seen that one part amniotic fluid, when added to twenty parts of blood, can cut in half the time required for clotting.

It appeared that by studying the behavior of amniotic fluid with oxalated plasma and fibrinogen solution[2] we might be able to identify its place in the coagulation mechanism. The effect of amniotic fluid on the rapidity of clot formation in recalcified plasma is illustrated in Table 2. These data indicate that amniotic fluid decreases the clotting time of recalcified oxalated plasma.

TABLE 1

Clotting Time

Specimen	Number of tests	Controls	With amniotic fluid
		Min	*Min*
A1-19	5	7.0	3.5
A1-21	3	7.5	3.0
A1-20K	4	7.8	3.4
A1-19W	3	7.7	3.4
A1-25S	6	7.5	6.0
A1-27	3	5.8	4.2
A1-28	7	6.3	3.6
A1-30G	15	8.0	3.6
A1-31	4	8.7	2.8
A2- 4	7	10.0	3.9
A2- 4S	3	8.0	2.6
A2- 5A	8	9.0	4.0
A2- 5N	5	9.3	2.7
A2- 5S	5	9.6	3.4
A2- 9W	5	7.5	3.6
A2-15A	4	8.3	3.5
A2-24	4	7.7	3.1
A2-25B	8	10.0	3.7
A2-24N	3	7.5	3.1
A3- 1G	5	8.7	2.4
A3- 2W	5	9.2	3.9

TABLE 2

Recalcification Time

Specimen	Controls*	Plus 0.1 cc amniotic fluid†
	Sec	*Sec*
A1-19	76	46
A1-21	85	55
A1-20K	100	60
A1-19W	85	25
A1-25S	142	71
A1-27	131	55
A1-28	177	52
A1-30G	145	42
A1-31	111	47
A2- 4	140	56
A2- 4S	125	49
A2- 5A	93	53
A2- 5N	97	37
A2- 5S	110	61
A2- 9W	93	56
A2-15A	115	59
A2-24	135	65
A2-25B	145	73
A2-24N	145	63
A3- 1G	137	61
A3- 2W	120	36

* Recalcification time for 0.1 cc of 0.025 *m* calcium chloride, plus 0.1 cc physiologic saline, and 0.1 cc fresh plasma (0.5 cc of 0.1 *m* sodium oxalate to 4.5 cc blood).

† Substituting 0.1 cc fresh amniotic fluid for saline in recalcification.

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[2] Supplied by courtesy of Dr. John Edsall, Department of Physical Chemistry, Harvard Medical School, Boston.

Preliminary experiments showed that amniotic fluid alone would not clot oxalated plasma; therefore it does not act like thrombin or trypsin, which clot oxalated plasma without added calcium. Amniotic fluid contains no prothrombin, since a clot will not form in prothrombin-free, oxalated plasma on the addition of calcium, thromboplastin, and amniotic fluid. Amniotic fluid does not decrease the plasma prothrombin time in the one-stage method.

TABLE 3

CLOTTING TIME

Specimen	Hemophilic blood	With 0.1 cc amniotic fluid
	min.	*min.*
A2-24	54	4
A2-25B	54	3.8
A3- 1G	54	3.5
A3- 2W	54	3.9

Amniotic fluid has a marked antihemophilic action *in vitro*. Table 3 shows the effect of .1 cc of amniotic fluid on the clotting time of a hemophiliac who was resistant to therapy with Fraction 1 and fresh frozen plasma. It can be seen that the amniotic fluids produced clotting times with hemophilic blood comparable to those they gave with normal blood, whereas the hemophilic control tubes clotted in 54 min.

It would appear that amniotic fluid acts like thromboplastin in its effect on oxalated plasma. This activity is preserved for several days by storage in the deep freeze at $-10°$ C but deteriorates within 1–3 days on standing at room temperature or in the ice box. The activity is nondialyzable. Boiling strongly for 5 min destroys it, although it is stable at 60° C for 30 min. Furthermore, it is entirely inactivated by small amounts of heparin. Various incubation tests which were done with amniotic fluid and fibrinogen clot or plasma clot showed no evidence of fibrinolytic power in amniotic fluid. Clotting tests of amniotic fluid with fibrinogen solution verify the lack of thrombic or prothrombic activity.

Uncontaminated amniotic fluid collected during labor contains a coagulant. This coagulant is thromboplastic in its behavior and antihemophilic. It is possible that amniotic fluid initiates clotting of shed intra-uterine blood and therefore plays an important part in normal postpartum hemostasis.

Comments and Communications

The AEC Loyalty Oath

A letter that I wrote some time ago to Dr. Detlev W. Bronk, chairman of the National Research Council, in connection with the loyalty oaths now required of Atomic Energy Commission Fellows, is still timely. One of the points made in this letter is, indeed, strongly emphasized by the recent proposal, embodied in the O'Mahoney Amendment to the Independent Offices Appropriation Bill, for a mandatory FBI investigation of all AEC fellows: namely, the point that it is difficult to contain measures of this kind within those bounds which might be suggested by prudence or by a decent instinct of self-restraint.

Basically, the issue here is one of political freedom. The denial of educational rights or privileges to a citizen who would be eligible for them were it not for his failure to measure up to some arbitrary political test is a clear violation of the principles upon which our republic was founded. The essence of the matter has been stated with complete clarity by Mr. Justice Stone in his celebrated dissenting opinion (later adopted by a unanimous court in a spectacular reversal of its decision) in the so-called "Flag Salute Case"—Minersville School District *et al.*, vs. Gobitis, 310 US 601. That opinion should be read by anyone interested in the present discussion. Any attempt to distinguish between the situation met in the "Flag Salute Case" and the present one will only bring out the fact that the distinctions are completely secondary.

My letter follows:

Dear Dr. Bronk:

The statement issued by the Atomic Energy Commission on May 22 concerning the oaths and affidavits which will henceforth be required of holders of A. E. C. Fellowships is now available in its entirety, as published on page 552 of "Science" for May 27, 1949. Previous fragmentary reports concerning this statement had caused me to weigh its possible implications with great care. As a member of one of the boards created by the Council to pass on applicants for the A. E. C. Fellowships, I felt I should formulate and make explicit my own attitude toward the new situation. With the publication of the full statement before me, I am now able to arrive at a definite conclusion. I am therefore writing you to request that my resignation from the Postdoctoral A. E. C. Fellowship Board for Mathematics, Physics, and Chemistry, already placed in your hands under date of May 10 for reasons of a purely practical nature, be made effective at once.

A full statement of my reasons for this request would doubtless be inordinately long. There are, however, three main points which I might make here by way of briefly explaining those reasons. Fundamentally, it seems to me, the imposition of political conditions upon the pursuit of scholarship, however supported, is contrary to the political principles on which our nation is founded; prejudicial to the proper development of basic research in the United States; and most difficult to contain within those limits which the proponents of the current measures appear to accept as necessary. If I were not opposed to these measures on grounds of principle, I would nevertheless wish to withdraw from the atmosphere of suspicion which they will inevitably generate unless they are modified in the sequel by a practice of confining loyalty investigations of fellowship holders to those cases where classi-