time, but while the trap is attached to the generator and ready for work this valve must be left open, as the water supply to the trap must be free to feed the trap when it is in use. A check valve may be placed between the hand-operated valve and the trap to guard against loss of water from the generator if the water pressure should become lower than that of the autoclave.

Precautions must be mentioned in connection with the use of an appliance of this kind. The trap selected should have a steam trap pressure rating of from 20 to 25 pounds more than the regular pressure on the water system. Also, this system, in order to function successfully, must be supplied from a water supply in which the minimum pressure is at all times from 10 to 15 pounds greater than the maximum pressure at which the autoclave is to be operated, and all the fittings and pipe used in connecting the trap to the generator should be of brass.

The application of this equipment on an autoclave in these laboratories was found to be relatively inexpensive, as the total cost, including all materials and labor, came to $22. Since the cost of repairing a burned generator has, in the past, amounted to half of the above figure, the installation of this water-level regulator to prevent such an accident seemed advisable. The work was easily done by an ordinary maintenance mechanic without interfering with the regular laboratory schedule. This water-level regulator has worked in a very satisfactory way for a period of four months; it has eliminated the constant watching of the autoclave when it is in use, and has enabled the operator to attend to other duties in normal routine work without increasing the danger of burning out the apparatus. Knowing the difficulties experienced in our own laboratories previous to the installing of this device, it is hoped that this information will prove of value to other institutions faced with similar difficulties in operating this type of autoclave.

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THE SUPPRESSION OF SULFURIC ACID MIST IN KJELDAHL DIGESTIONS

As is well known, Kjeldahl digestions, as usually conducted, are always associated with the escape of very irritating and corrosive mist of sulfuric acid, continuing throughout the digestion.

Attempts to abate this nuisance have usually been in the direction of disposing of the mist after its issuance from the digestion flask, by placing the mouth of the flask through a hole in a leaden pipe, which in turn has an exit leading outdoors.

We have adopted the idea of preventing the escape of the mist of sulfuric acid from the flask, while permitting the steam, sulfur dioxide and carbon dioxide formed in the process of digestion to escape freely. This mode of procedure permits the digestion to be performed on the laboratory table, doing away with the special fume closet or special digestion rooms, which, as we well know, are places to be shunned.

We have found that the object stated above, *viz.*, the prevention of the escape of the mist of sulfuric acid and the simultaneous free exit of steam, sulfur dioxide and carbon dioxide was accomplished when we inserted in the neck of the digestion flask a snugly fitting tube of alundum, closed at the bottom and flanged at the top so that it might be supported on the flange of the flask.

If desired, though it is scarcely necessary, a stopper and delivery tube may be inserted in the mouth of the alundum tube, thus providing a means for leading the sulfur dioxide, etc., into soda lime or any other convenient absorbent.

At the end of the digestion the alundum tube may be withdrawn and filled with water, thus washing it out and permitting the recovery of any traces of spray containing ammonium sulfate, and their return to the digested fluid in the flask.

The device will be found simple, cleanly, convenient, inexpensive and efficient.

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SPECIAL ARTICLES

THE ATOMIC WEIGHT OF LEAD FROM CYRTOLITE

LEAD contained in the thorium-free mineral cyrtolite occurring in Bedford, New York, was extracted with hydrofluoric acid and purified by crystallization as nitrate and chloride and by sublimation in hydrogen chloride. Weighed quantities of fused salt were then precipitated with weighed, nearly equivalent amounts of pure silver and the exact endpoint of the reaction determined nephelometrically by the equal-opalescence method. Comparison experiments were carried out with common lead (atomic weight 207.22) and lead from Swedish kolm (atomic weight 206.01).

The result of the experiments with cyrtolite lead

THE ATOMIC WEIGHT OF LEAD

Ag = 107.88				Cl = 35.457	
Sample of $PbCl_2$	Wt. of $PbCl_2$ in vacuum g.	Wt. of Ag in vacuum g.		Ratio $PbCl_2$: 2Ag	Atomic Weight of Pb
cyrtolite	0.99965	0.77906		1.28315	205.938
cyrtolite	0.99219	0.77325		1.28314	205.936
cyrtolite	0.76907	0.59951		1.28294	205.893
cyrtolite	0.73596	0.57358		1.28310	205.928
			Average	1.28317	205.924
common	2.47843	1.92274		1.28901	207.203
common	2.80252	2.17405		1.28908	207.218
			Average	1.28905	207.211
kolm	3.42063	2.66510		1.28349	206.012

indicates that it is nearly, if not quite free from common lead and that the lead-uranium ratio already found by Muench for this specimen of cyrtolite may safely be used for the estimation of the geologic age of this mineral. The low value is difficult to understand in light of present knowledge (1) of the isotopic weight of radium-lead as found by Aston with the mass spectrograph, 205.98 ± 0.02, if the factor for converting from the physical to the chemical scale is taken as 1.00022, and (2) of the ratio of Pb^{206} to Pb^{207} in pure uranium lead from Katanga, 93.3 to 6.7, as found by Aston. The minimum atomic weight to be expected on this basis is 206.03.

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SUCCESSFUL INTERSPECIES TRANSPLANTATION OF A MOUSE TUMOR

IN a recent publication[1] it was demonstrated that two of the spontaneous tumors employed by the author differed from all other transplanted tumors that have originated spontaneously in albino stock (A) mice in our laboratory. One of these tumors, 15091a, is further reported on in this communication, which gives the results obtained by transplanting it into several different inbred strains of mice. Both *Mus musculus* and *Mus bactrianus* received transplants of tumor 15091a.

This neoplasm arose spontaneously in the mammary gland of an old *Mus musculus* breeding female of the inbred A stock. In this species we employed, as hosts, mice from five inbred stocks which are entirely unrelated to the members of the A stock. There is only one stock of *Mus bactrianus*. The results obtained since December, 1931, are shown in Table 1.

The problem started with an attempt to find a stock of mice whose members were 100 per cent. negative to tumor 15091a. Up to the present time no such stock has been found. Of the *Mus musculus* stocks employed the Z, or Zavadskaia, strain is the only one which approaches closely to the results expected when the hosts are members of a truly negative stock. In Table 1 only those individuals which showed masses at the second weekly observation were recorded as carrying unmistakable growths. All the *Mus musculus* stocks used, except the A stock, showed a varying number of individuals which carried masses for about four weeks. At this time they became absorbed to the extent that they were no longer palpable, and

[1] A. M. Cloudman, *Amer. Jour. Cancer*, 16: 568–630, 1932.

TABLE 1

RESULTS OF TRANSPLANTING TUMOR 15091a INTO PURE STOCKS OF TWO SPECIES OF *Mus* (*musculus and bactrianus*)

Stocks	1st inoculation				Reinoc. of neg.				Total results				Ratio	Per cent. negative
	+	−	reg.	total	+	−	reg.	total	+	−	reg.	total		
Mus musculus														
A	150	0	0	150	0	0	0	0	150	0	0	150	n+ : 0−	0.00
MD	50	32	3	85	26	4	5	35	75	3	7	85	7.5+ : 1−	11.76
D	63	30	11	104	28	12	1	41	91	3	10	104	7+ : 1−	12.50
B	10	10	1	21	2	8	0	10	12	8	1	21	4+ : 3−	44.95
Ld	7	22	17	46	0	39	0	39	7	22	17	46	1+ : 5.5−	84.78
Z	1	60	17	78	0	76	1	77	1	60	17	78	1+ : 77−	98.69
Mus bactrianus	3	11	77	91	0	7	4	11	3	9	79	91	1+ : 29−	96.70

(A = albino, MD = W. S. Murray's dilute browns, D = Strong's dilute browns, B = Little's blacks, Ld = J. M. Murray's leaden, Z = Zavadskaia's albinos, (+) = truly susceptible, (−) no growth, reg. = temporary growth followed by regression, Inoc. = subcutaneous implant).