the active material. This is borne out by the observation of Miss M. Hill, privately communicated to me, that urine extracted as many as twelve times with ether may still contain large amounts of oestrin.

If the urine is acidified before ether extraction, the yields of oestrin obtainable can be very greatly increased. Three successive batches of fifty litres of urine treated in this manner yielded 2,069,000, 980,000, 1,000,000 mouse units, tested by the method recently described in the *Journal of Physiology* by Dr. A. S. Parkes and myself. The error in this method is little, if any, more than ± 10 per cent.

Saponification and subsequent ether extraction of such crude ether-soluble material, although effecting considerable purification, results in the loss of a great part of the total activity. This loss can be minimised by saturating the saponified mixture with carbon dioxide before ether extraction (paper in press). The material obtained in this way can be further purified by extraction with ice-cold acetone, extraction with ice-cold 50 per cent alcohol, and finally extraction from ethereal solution with aqueous potash. The active material may be extracted from this alkaline solution with ether after acidification. The total loss of activity throughout the whole process of purification has been found to be approximately 40 per cent. As the following table shows, practically the whole of this loss occurs in the initial saponification.

	Wt. (gm.).	No. M.U.	Wt. 1 M.U. (mgm.).	Yield M.U. per litre.	Loss per cent.
Total ether sol. material from 50l of urine	22	2,069,000	0.0106	41,380	..
Unsap. matter (after CO ₂ treatment)	2.845	1,278,000	0.00223	25,560	38
Acetone sol. 50 per cent	2.456	1,236,000	0.00199	24,720	40
alcohol sol.	0.742	1,236,000	0.000600	24,720	40
Alkali sol.	0.364	1,208,000	0.000301	24,160	41.5

Similar results have been obtained with several other batches of urine.

The most potent preparation of oestrin obtained by me by these methods had an activity of 8 million mouse units per gram. This is of the same order of activity as the pure crystalline hormone described by Dr. A. Butenandt, of Göttingen, in a preliminary communication. The latter, however, injects his material dissolved in oil in a single dose. It is therefore somewhat difficult to compare the activity of the crystalline hormone with my obviously impure preparations.

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Department of Physiology and Biochemistry,
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Dec. 23, 1929.

The Product of the Radioactive Disintegration of Potassium.

DIE obige Mitteilung der Herren Frost (NATURE, Jan. 11), deren Korrekturbogen mir durch die Freundlichkeit des Editor der NATURE zur Einsichtnahme vorgelegt wurden, interessiert mich in ganz besonderem Masse, da ich derzeit mit dem Studium der gleichen Frage beschäftigt bin.

Zu den Atomgewichtsbestimmungen der beiden Autoren möchte ich mir die Bemerkung erlauben, dass es mir zu gewagt erscheint aus den mitgeteilten Analysenresultaten weitgehende Schlüsse in der so wichtigen Frage nach der Existenz eines durch radio-

aktive Umwandlung des Kaliums entstandenen Calciumisotops zu ziehen.

Um Atomgewichts-Unterschiede der Isotope experimentell festzustellen, muss man zunächst über eine zuverlässige Bestimmungsmethode, die genügende Genauigkeit garantiert, verfügen. Die von den beiden Autoren angewandte Methode, Umwandlung des CaCl₂ in CaBr₂, arbeitet zwar bei richtiger Ausführung, wie ich mich bei meiner Atomgewichtsbestimmung des Radiums überzeugen konnte, sehr gut und sicher, dennoch lieferte sie hier recht unsichere Werte. Be trägt doch die maximale Differenz der drei mit gewöhnlichem Calcium ausgeführten Vergleichsbestimmungen 0,1 Einheiten des Atomgewichtes, ist also fast ebenso gross wie die festgestellte Differenz der Mittelwerte der Atomgewichte der beiden Calciumproben, die nur 0,12 Einheiten erreicht.

Ferner muss es nach den bisherigen Mitteilungen fraglich erscheinen, ob die beiden Calciumproben in Bezug auf chemische Reinheit vergleichbar waren, da der spektroskopische Nachweis für die Abwesenheit der schweren Calciumhomologen, Strontium und Barium, fehlt. Die von den Autoren angewandte Reinigungsmethode, wiederholte Fällung des Calciumsulfats und Oxalats, habe ich bei der Herstellung meiner atomgewichtsreinen Calciumpräparate, die auch gerade jetzt in meinem Laboratorium durchgeführt wird, niemals versucht, da ich sie von vorn herein für nicht ausreichend erachten muss.

Bevor man zu der grundlegenden Frage nach der Existenz des aus Kalium entstandenen Calciumisotops Stellung nehmen kann, wird man die angekündigten weiteren Versuche der beiden Autoren abwarten müssen, die mit grösseren Materialmengen ausgeführt hoffentlich zuverlässigere Atomgewichtswerte liefern werden.

O. HÜNGSCHMID.

München.

Preparations of Protozoa and Algæ.

WISHING to get some permanent preparations of the Protozoa of West African forest pools, I have adopted a simple little technique which if not known is worth publication. Two clean cover glasses are tied together back to back with thread, one end being left long. They are suspended in the water with the lower edge just touching the bottom and sloping somewhat. They are left for several days and then lifted out and immersed at once in alcoholic Bouin's fixative. Afterwards I stain with Erlich's acid hæmatoxylin, 1 in 20 or 30 per cent alcohol, 3 hours, differentiate in 1 per cent acetic acid in 70 per cent alcohol, 1-3 hours, no counterstain being needed. The cover slips may be kept tied together if desired up to the stage of dehydration. Most, if not all, of the species of Protozoa and Algæ which may be seen in the fresh sample can be found excellently fixed and stained in the mounted specimen. LL. LLOYD.

Azare, N.P., Nigeria,
Nov. 3.

THE plan adopted by Dr. Lloyd is excellent, providing always that it is not frustrated by (a) wind and rain, (b) fish, or (c) hungry marauders. We adopted a similar plan in my tanks at Selsey when we were studying the bionomics of *Verneuilina poly-stropha* and *Massilina secans*. We hung cover slips (a) vertically, and (b) horizontally close against the sides of the tanks, and they collected satisfactory gatherings of 'primordials' and very young tests. I do not think it was an original operation, for I seem to remember having got the idea from something I had read.

EDWARD HERON-ALLEN.