The next morning the resistance of the rheostat was diminished from time to time.

Time.	Ampère.	Volts.
9 A.M	0.125	3.0
12 M	0.105	3.1
5 P.M	0.195	3.3

Determination.	Weight of cadmium taken. Gram.	Weight of cadmium found. Gram.
1	0.0454	0.0452
2	0.0454	0.0454
3	0.0642	0.0642
4	0.0642	0.0642
5	0.0642	0.0641

A large number of determinations were made in more concentrated solutions, also with stronger currents, but these often failed to give a good adherent plate of the metal. The plates formed in the determinations given showed no tendency to oxidize and they could be kept for several days in the desiccator without change of weight.

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THE NORMAL URINE.

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THE various compilations current as "Text-books of Urine Analysis," differ materially in their statements as to the average composition of a normal urine. In many cases, indeed, the authors have not even attempted to reconcile their "totals" with the figures given for individual constituents, but aside from this, which is, of course, the result of carelessness on the part of the compiler, we find great variations in the original figures, due not so much to errors of determination as to failure to secure representative samples for analysis. Normals determined for one nationality, or for one class of one nationality, are commonly applied indiscriminately to all without regard to fundamental differences in conditions. For instance, the average American's habit of life is not that of the German student, and yet it is a fact that the majority of figures given in our text-books have originated with the observations of German professors, working in conjunction with their student assistants.

In view of this laxity in text-book statement, the writer has for several years made careful records of all urine analyses with due attention to the age, sex, and health of the individuals supplying the samples, and these figures (in all cases compared with and in some cases averaged with those of foreign observers) are now given in the following table: [1]

THE NORMAL URINE.

Color.....Pale-amber, straw-yellow.
Appearance.....Clear or with faint cloud of mucus.
Odor.....“Aromatic.”
Reaction.....Acid. Acidity in 24 hours equivalent to 2–4 grams oxalic acid.
Specific gravity at 15° C..Range for adults, 1.015–1.025. Averages: Man, 1.020; Woman, 1.018.
Quantity.....1100–1600 cc. in 24 hours. Averages: Man, 1450 cc. (22 cc. per kilo of body-weight); woman, 1250 cc.

		Averages for adults. Man.		Woman.
	Normal urine. Grams.	Grams urine in 24 hrs.	Grams per kilogram of body-weight.	Grams urine in 24 hrs.
Total solids	45.0 –65.0	60.0	0.91	51.0
Urea	20.0 –50.0	34.0	0.51	30.0
Uric acid	0.3 –0.8	0.6	0.009	0.5
Creatinin	0.4 –1.3	0.9	0.014	0.8
Hippuric acid	0.4 –1.0	0.7	0.010	0.6
Xanthine, sarcine, etc	0.001–0.010	0.005	....	..
Oxalic acid	0.020–0.030	0.025	....	..
Glycero-phosphoric acid	0.010–0.020	0.015	....	..
Propionic, valeric, caproic, and butyric acids	0.008–0.080	0.040	....	..
Phenol, cresol, etc	0.005–0.020	0.010	....	..
Sulphur dioxide in ethereal sulphates	0.090–0.500	0.250	....	..
Indoxyl sulphuric acid (calculated as indigo)	0.005–0.019	0.008	....	..
Thiocyanic acid	0.001–0.008	0.004	....	..

[1] Authors consulted: J. Vogel, Loebisch, Kerner, Daiber, Hammarsten, Neubauer, Pflüger, Voit, Salkowski, Liebermann, Brieger, Hoffmann, Dragendorff, Munk, Hoppe-Seyler, Yvon and Berlioz, Lehmann, Uhle, Ranke, Furbringer, Geschleiden, Moritz, von Jacksch, Planer and Morin, Magnier, Robuteau, Gautier, Becquerel, Méhu, Halliburton, Charles, Parkes, Black, Bence-Jones, Tidy and Woodman, Beale, Parrot, Breed, Oliver, Thudichum, Weidner, Purdy, Tyson, Grüner, Jaffé, Rankin, von Franque, Oppenheim and Meyer.

	Normal urine. Grams.	Averages for adults. Man. Grams urine in 24 hrs.	Man. Grams per kilogram of body-weight.	Woman. Grams urine in 24 hrs.
Paraoxyphenylacetic, paraoxyphenylpropionic, dioxyphenylacetic, and paraoxyphenylglycollic acids	0.010–0.030	0.020	....	..
Bile salts	0.0 –0.010	0.008	....	..
Urobilin, urochrome, etc	0.080–0.140	0.125	....	..
Carbohydrates (Reducing power of normal urine equivalent to an average of three-tenths of one per cent. glucose).	0.014–0.075	0.044	....	..
Sarco-lactic, succinic, glycuronic, and oxaluric acids, acetone, inosite, cystin, taurin, urorubinogen, urorubin, pigment of Giacosa, scatoxylsulphuric acid (often in considerable amount), scatoxylglycuronic acid; nephrozymase, pepsin, and other ferments; pseudoxanthine, paraxanthine, heteroxanthine, guanine, adenine, etc.; pyrocatechin, hydroquinone, protocatechuic acid, etc	traces	....	....	..
Chlorine	5.0 -10.0	7.3	0.110	6.0
Phosphorus pentoxide	2.0 - 3.5	3.0	0.045	2.5
Sulphur trioxide	1.5 - 3.0	2.2	0.033	1.9
Potassium oxide	2.5 - 3.5	3.0	0.045	2.8
Sodium oxide	4.0 - 6.0	4.5	0.068	4.0
Ammonia	0.5 - 0.8	0.72	0.010	0.6
Calcium oxide	0.2 - 0.4	0.30	0.0045	0.28
Magnesium oxide	0.3 - 0.5	0.40	0.0066	0.35
Iron	0.001-0.010	0.007	....	..
Silicic acid, carbonic acid, hydrogen peroxide, nitrates, nitrites, and metals; *e. g.*, manganese and copper	traces	....	....	..

GASES[1] IN NORMAL URINE.

	In 100 volumes of gas. cc.	In one liter of urine. cc.
Carbon dioxide	65.40	15.957
Oxygen	2.74	0.658
Nitrogen	31.86	7.775
	100.00	24.390

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[1] Morin, after Loebisch.