XXXIV.—*Analyses of some Bronzes found in Great Britain.*

By A. H. CHURCH.

DURING the progress of the Main Drainage works, a large number of small articles of bronze have been discovered. Antiquarians entertain no doubt of the authenticity of a certain portion of these specimens of Roman-British manufacture. Last year Mr. R. H. Soden-Smith placed in my hands for analysis two bronze needles found in 1864, at Southwark. One of these was quite untarnished when the earth was washed off it, and presented a most beautiful and rich gold colour. On analysis it gave the following results :—

Copper	84·27	per cent.
Zinc, with a little iron	14·70	„
Tin	2·36	„
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101·33		

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The excess over the 100 parts is probably in part due to the presence of ferric oxide in the substance weighed as zinc-oxide, the larger percentage of oxygen in the former compound rendering the calculation inexact.

Another specimen less beautiful in colour had the following composition :—

Copper	84·90	per cent.
Zinc, with a little iron	13·00	„
Tin	1·03	„
Lead and impurities	1·07	„
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	100·00	

These analyses (and others already published) show that much of the so-called bronze of the Roman period found in Britain should, correctly speaking, be termed brass. In the ethnological gallery of the British Museum, however, the word bronze is still retained for specimens exactly resembling those which I have analysed and obtained from the same locality.

A comparison of Celtic bronzes with those of Roman-British origin, just described, offers some considerations of interest.

At Aboyne, not long since, three massive bronze armlets were found. The workmanship and design seem to prove them to belong to the period anterior to the Roman possession of Britain. A very small fragment of the metal was taken from these rare and interesting specimens, by permission of their owner, the Marchioness of Huntly, and handed to me for analysis by Mr. Soden-Smith.

	Armlet No. 1.		Armlet No. 2.
Copper.....	86·49		88·19
Tin	6·76		3·64
Zinc.....	1·44		9·13
Lead.....	4·41		—
Loss and oxygen, &c...	·90		—
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	100·00		100·96

The injurious effects of lead upon brass and bronze are well known. In the present case (of armlet No. 1) there was marked evidence of a deterioration in the alloy, produced by the large proportion of lead present,—for the armlet, though very massive, had been

broken (and mended) at the period of its use. The metal was cracked, the fissures presenting the appearance of some lead-containing bronzes after they have been worked when hot.