interest. They have been analyzed in my laboratory by C. Tookey. Combustion was effected in a current of oxygen, and desiccation between 100° C. and 110° C. The results are as follow:—

Composition per cent.

	I.	II.	III.	IV.
Carbon	60·13	69·53	57·38	56·19
Hydrogen	4·14	5·36	3·74	4·14
Oxygen and nitrogen ...	10·77	15·22	17·50	17·39
Sulphur	2·36	0·55	0·68	2·23
Ash	2·10	3·44	3·90	2·40
Water	20·50	5·90	16·80	17·65
	100·00	100·00	100·00	100·00

Composition per cent., exclusive of Sulphur, Ash, and Water.

	I.	II.	III.	IV.
Carbon	80·26	77·16	72·98	72·29
Hydrogen	5·52	5·95	4·76	5·33
Oxygen and nitrogen ...	14·22	16·89	22·26	22·38
	100·00	100·00	100·00	100·00
Coke, per cent.	43·15	54·00	51·80	44·95

I.—This lignite is black; dull in fracture; its powder is brown. When heated in a close vessel, it yields a non-coherent coke.

II.—This lignite is black and bright, like good bituminous coal; friable; even in fracture; its powder is dark-brown. It scintillates much when held in a flame; and, when heated, it evolves an odour like petroleum, cakes, and yields a firm coherent coke. Colour of the ash, red.

III.—This lignite is black and compact; its fracture is conchoidal and smooth; its powder is brown. It yields a non-coherent coke.

IV.—This lignite is black and compact; its fracture is uneven and dull; its powder is brown. It yields a non-coherent coke.

On inspecting the preceding analyses of Trinadid lignites, it will be observed that, with the exception of II., all contain a *large proportion of hygroscopic water*, a proportion far exceeding that which is found in any coals of the carboniferous system. II. presents an example of a so-called lignite which, in respect to physical characters and chemical composition, resembles bituminous coal of the carboniferous system.

Lignite from New Zealand and from Tasmania.

Lignites from Auckland, New Zealand, and from Tasmania, have been analyzed in my laboratory by C. Tookey, with the following results:—

Composition per cent.

	I.	II.
Carbon	55·57	59·90
Hydrogen	4·13	4·66
Oxygen	15·67	15·99
Nitrogen	1·15	1·08
Sulphur	0·36	0·30
Ash	9·00	4·64
Water	14·12	13·43
	100·00	100·00

I.—From Auckland. This lignite is black; dull in lustre; its fracture is uneven, and more or less conchoidal; it shows distinct cleavage. Brown resin occurs diffused through this lignite in pieces varying in size from a pea to considerable masses.

II.—From Tasmania. This specimen was sent by the late Governor Denison. In physical characters this lignite is similar to the last described, and it also contains resin diffused in like manner through its substance.

Accompanying the specimen of lignite from Tasmania was a piece of resin as large as the fist, which was more opaque, and less resembling ordinary varieties of amber in appearance, than that diffused through I. By the action of benzole a portion only dissolves, a gum-like insoluble mass being left, which retains the form and bulk of the original mass. The specimen was analyzed after having been dried between 110° and 120° C.; on combustion, the resin gave 81·60 per cent. of carbon and 11·06 of hydrogen.

APPENDIX B.

Compressed Coal.

1. Are there several sorts?—Yes, a great many.

2. Are they protected by patents, and, if so, will patents soon run out?—They are protected by patents, some of which will soon run out.

3. Relative bulk for stowing in vessels of good coal and compressed coal?—One ton compressed coal occupies about 32 cubic feet, and one ton ordinary steam coal about 42 cubic feet; or 130 tons compressed coal can be stowed in the space required for 100 tons ordinary coal.