correct analysis and a rotation value in agreement with that reported *.

A methanolic extract of commercial wall-flower seeds was concentrated, dissolved in water and filtered. Addition of potassium thiocyanate caused the precipitation of the quaternary base sinapine as the slightly soluble thiocyanate. The dried residue from the filtrate was subjected to acetylation in the usual way³ and the crude tetraacetate, in turn, subjected to deacetylation with ammonia in methanol to give the oily glucoside. On recrystallization of this from 80 % ethanol, glucocheirolin monohydrate separated as colourless needles, purified for analysis by two additional recrystallizations.

The intermediate, anhydrous *potassium tetraacetylglucocheirolinate* was obtained from water as thin colourless needles, m. p. 193–194° (decomp.), $[\alpha]_D^{25} -18.0^\circ$ (c 1.0, H₂O). (Found: C 35.32; H 4.26; N 2.04; S 14.78. Calc. for C₁₉H₂₈O₁₅NS₄K: C 35.33; H 4.37; N 2.17; S 14.89.)

Seeds of *Lunaria annua* L. (= *L. biennis* Moench) have formerly served in this laboratory as a source of isopropyl isothiocyanate⁴. The hypothetical glucosidic progenitor of this mustard oil, *glucoputranjivin*, which was independently suggested by Puntambekar⁵ as a constituent of the Indian plant *Putranjiva Roxburghii* Wall. (*Euphorbiaceae*), has now been isolated in form of its crystalline tetraacetate. A crude specimen, isolated from *Lunaria* seeds and acetylated in the usual way, was repeatedly recrystallized from 96 % ethanol to give colourless needles of the anhydrous *potassium tetraacetylglucoputranjivate* with m. p. 180–190° (decomp.), highly dependent on the rate of heating; $[\alpha]_D^{25} -15.4^\circ$ (c 1.2, H₂O). (Found: C 38.20; H 4.77; N 2.54. Calc. for C₁₈H₂₆O₁₃NS₄K: C 38.08; H 4.62; N 2.47.)

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Electrical Conductivity of Some Palladium Sulfides and of Silver Palladium Sulfide

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The System Pd-S has recently been examined by Grønvold and Røst¹ who found the following compounds stable at room temperature: Pd₂S, Pd₃S, PdS and PdS₂. The system Ag–Pd–S was studied, in 1954, by Raub, Wullhorst and Plate². Only one ternary compound, Ag₂Pd₃S, was detected.

Specimens of Pd₂S and PdS were kindly supplied by Dr. Grønvold. Pd₂S and Ag₂Pd₃S were prepared by heating briquetted mixtures of the finely powdered elements (c.p. grade) in evacuated, sealed-off silica tubes to 630°C for several days, in accordance with the conditions of formation indicated by the phase studies^{1,2}. The samples were crushed, X-ray powder patterns recorded to confirm the completeness of the reaction, and the powders rebriquetted at ca. 250 kg/cm² in the form of small bars of 15 × 4 × 3 mm. These were sintered for a week in evacuated silica tubes at 600°C. X-Ray patterns recorded

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in reflection from the surface of the bars revealed no changes during sintering.

Preliminary measurements indicated very low resistances for all samples, including PdS. Of this latter compound, only one test bar had been made, which was accidentally damaged before accurate measurements could be carried out. The preliminary experiments would put its conductivity in the same order of magnitude as that of the other palladium sulfides. For the other samples, measurements were made both with direct current and at different A. C. frequencies up to 10 kc/sec. They gave practically identical values, indicating that grain boundary resistance had no appreciable influence on the results.

The following values were recorded:

Compound	$\rho_{20^\circ\text{C}}$ * (Ωcm)	$d\rho/dt$ ($\Omega\text{cm/degree C}$)
Pd_4S	3.20×10^{-4}	$+1.05 \times 10^{-6}$
$\text{Pd}_{2.9}\text{S}$	10.00×10^{-4}	$+1.80 \times 10^{-6}$
$\text{Ag}_2\text{Pd}_3\text{S}$	1.93×10^{-4}	$+0.22 \times 10^{-6}$

The positive temperature coefficient as well as the low absolute values of the resistivities indicate that these compounds are metallic conductors. For the Pd sulfides, Grønvold and Røst had inferred, from magnetic susceptibility measurements, that they should be essentially non-ionic, *i. e.* either metallic or covalent. The present measurements show that the former is the case. As for $\text{Ag}_2\text{Pd}_3\text{S}$, its high metal content suggested that this compound should be considered as an alloy phase.

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* Without correction for porosity, which was of the order of 10 %.

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A New Crystalline Modification of Cellulose as Revealed by X-Ray Diffractograms of Hydrolyzed Cotton and Wood Pulp

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In an attempt to obtain cellulose II with a high degree of crystallinity, it was discovered that surgical cotton as well as mercerized surgical cotton after 2–4 h treatment at 20°C with 40.3 % hydrochloric acid gave X-ray diffractograms which could not be explained exclusively by the hitherto known crystalline modifications of cellulose. A microphotometer curve of such an X-ray diffractogram obtained in an evacuated Guinier camera with $\text{CuK}\alpha$ -radiation is shown in Fig. 1a. Shorter or prolonged HCl treatments gave residues containing cellulose II only, as shown by the microphotometercurve in Fig. 1b. Diffractograms like the one in Fig. 1a could also be obtained from wood pulp and ground cotton at a lower acid concentration.

To investigate whether the strong reflections corresponding to the interplanar spacings 6.31 Å, 5.70 Å, 5.13 Å and 3.99 Å in Fig. 1a may be due to sodium cellulose formed during the neutralization, or to cellulose hydrates, oxycelluloses or hemi-celluloses, tests were carried out leading to the following results: Flame photometry showed only negligible (0.4 %) amounts of sodium. Drying for 18 h at 105°C gave no observable change in the diffractograms. An infrared spectrogram indicated no bonds other than those characteristic of cellulose, and a chromatogram of the sample showed glucose to be the only monosaccharide present. It should also be mentioned that viscosity measurements for the sample led to a DP-value below 100.

It must, therefore, be concluded that the sample consists of pure cellulose. The few reflections in Fig. 1a are of course insufficient for solving the structure of the unknown phase or phases, but it is reasonable to assume a unit cell and an arrangement of the glucose rings not too different from