

TABLE III  
Results of Experiments with Andalusite and Sillimanite

| Run No. | Starting Material | Temp (°C) | Pressure (atm) x 10 <sup>3</sup> | Time (min) | Heater | Phases Present                        |
|---------|-------------------|-----------|----------------------------------|------------|--------|---------------------------------------|
| 1609    | Andalusite        | 1000      | 15                               | 80         | G*     | Andal, corundum                       |
| 1629    | Andalusite        | 1820      | 35                               | 7          | G      | Mullite, glass, trace corundum        |
| 1630    | Sillimanite       | 1790      | 35                               | 5          | G      | Glass, corundum                       |
| 1672    | Sillimanite       | 1700      | 50                               | 13         | G      | Kyanite, corundum, coesite (?), glass |
| 1673    | Sillimanite       | 1670      | 25                               | 20         | G      | Glass, corundum                       |

\*G = Graphite

TABLE IV  
Results of Experiments with Gel Mixtures and Others

| Run No. | Starting Material      | Temp (°C)      | Pressure (atm) | Time (min) | Heater | Phases Present           |
|---------|------------------------|----------------|----------------|------------|--------|--------------------------|
| 1613    | Gel                    | 1000           | 20             | 120        | G*     | Quartz, corundum         |
| 1614    | Gel                    | >1000<br><1300 | 20             | 180        | Ni     | Kyanite, corundum        |
| 1620    | Gel                    | 1025           | 25             | 180        | Ni     | Quartz, corundum         |
| 1623    | Gel                    | 1900           | 30             | 2          | G      | Corundum, glass          |
| 1650    | Gel + H <sub>2</sub> O | 1300           | 35             | 60         | G      | Corundum, glass          |
| 1658    | Gel                    | 1800<br>1500   | 50<br>50       | 5<br>30    | G      | Kyanite, corundum, glass |
| 1660    | Gel + H <sub>2</sub> O | 1900           | 50             | 15         | G      | Corundum, glass          |
| 1664    | Gel                    | 1300           | 25             | 40         | Ni     | Corundum, glass          |
| 1669    | Gel                    | 1000           | 20             | 300        | Ni     | Corundum, glass          |
| 1667    | Kaolin and Gibb†       | 1700           | 35             | 15         | G      | Corundum, glass          |
| 1668    | Kaolin and Gibb†       | 1700           | 20             | 15         | G      | Corundum, glass          |

\*G = Graphite

†Gibb = Gibbsite

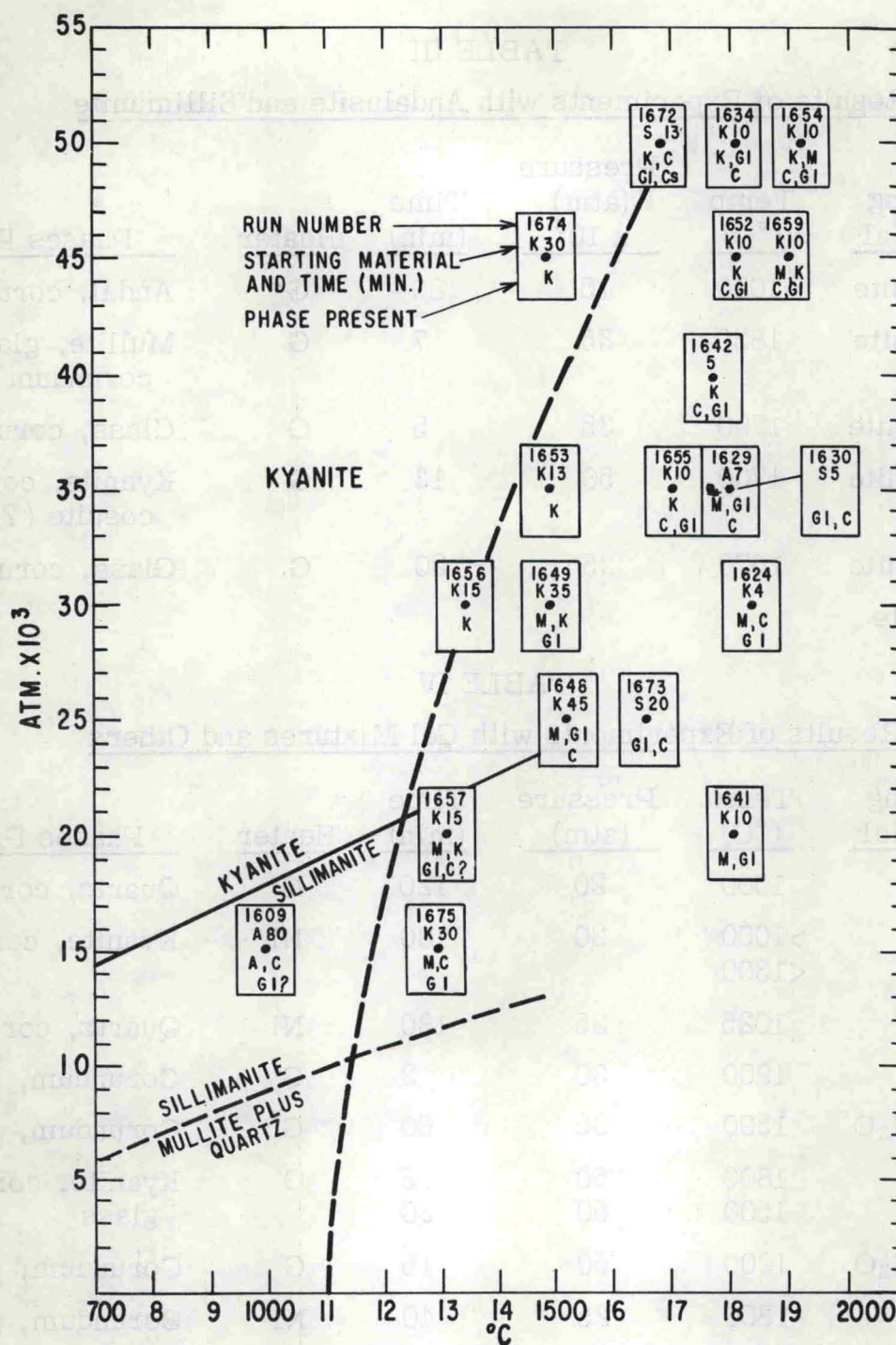


Fig. 3 Decomposition of kyanite as function of temperature and pressure (heavy dashed line). The solid line and the light dashed line are taken from Clark *et al.* <sup>(1)</sup> To the right of the curve above about 20,000 atm, there is evidence that the equilibrium assemblage may be corundum plus glass. Kyanite is stable to the left of the curve. The rectangle represents the precision of the temperature and pressure measurement. K = kyanite; S = sillimanite; A = andalusite; C = corundum; M = mullite; Gl = glass; Cs = coesite.