

## CONTENTS

---

|  | PAGE   |
|--|--------|
| <b>PART I</b>  |        |
| Introduction   | .. 1   |
| Discussion   | ... 20 |
| Experimental   | ... 39 |
| Preparation of dialkyl sulphides   | ... 39 |
| Preparation of dialkyl sulphones   | ... 39 |
| Bis-(phenylsulphonyl)-methane  | ... 40 |
| Bis-(phenylsulphonyl)-phenylthiomethane  | ... 40 |
| Tris-(phenylsulphonyl)-methane   | ... 41 |
| Benzyl phenyl sulphone   | ... 41 |
| p-Tolylsulphonylacetic acid  | ... 41 |
| Phenylsulphonylacetic acid   | ... 42 |
| $\alpha$ -Phenyl- $\beta$ -p-tolylsulphonylethylamine hydrochloride                    | ... 42 |
| $\alpha$ -Phenyl- $\beta$ -p-tolylsulphonylethylene                                    | ... 42 |
| $\alpha$ -3,4-Methylenedioxyphenyl- $\beta$ -p-tolylsulphonyl-ethylamine hydrochloride | ... 43 |
| $\alpha$ -3,4-Methylenedioxyphenyl- $\beta$ -p-tolylsulphonyl-ethylene                 | ... 43 |
| $\alpha$ -4-Methoxyphenyl- $\beta$ -p-tolylsulphonylethylamine hydrochloride           | ... 43 |
| $\alpha$ -4-Methoxyphenyl- $\beta$ -p-tolylsulphonylethylene                           | ... 44 |
| $\alpha$ -2-Methoxyphenyl- $\beta$ -p-tolylsulphonylethylamine hydrochloride           | ... 44 |
| $\alpha$ -2-Methoxyphenyl- $\beta$ -p-tolylsulphonylethylene                           | ... 44 |
| $\alpha$ -2-Nitrophenyl- $\beta$ -p-tolylsulphonylethylamine hydrochloride             | ... 45 |
| $\alpha$ -2-Nitrophenyl- $\beta$ -p-tolylsulphonylethylene                             | ... 45 |
| $\alpha$ -3-Nitrophenyl- $\beta$ -p-tolylsulphonylethylamine hydrochloride             | ... 45 |
| $\alpha$ -3-Nitrophenyl- $\beta$ -p-tolylsulphonylethylene                             | ... 45 |

|  | PAGE   |
|--|--------|
| $\alpha$ -3-Nitrophenyl- $\beta$ -p-tolylsulphonylethylamine   | ... 45 |
| $\alpha$ -3-Nitrophenyl- $\beta$ -p-tolylsulphonylethylene   | ... 45 |
| $\alpha$ -4-Chlorophenyl- $\beta$ -p-tolylsulphonylethylamine<br>hydrochloride                               | ... 46 |
| $\alpha$ -4-Chlorophenyl- $\beta$ -p-tolylsulphonylethylene  | ... 46 |
| $\alpha$ -p-Tolyl- $\beta$ -p-tolylsulphonylethylamine<br>hydrochloride                                      | ... 46 |
| $\alpha$ -p-Tolyl- $\beta$ -p-tolylsulphonylethylene   | ... 46 |
| $\alpha$ -2-Thienyl- $\beta$ -p-tolylsulphonylethylamine<br>hydrochloride                                    | ... 47 |
| $\alpha$ -2-Thienyl- $\beta$ -p-tolylsulphonylethylene   | ... 47 |
| N-Alkyl- $\alpha$ -aryl- $\beta$ -p-tolylsulphonylethylamine<br>hydrochlorides                               | ... 47 |
| $\alpha$ -Aryl- $\beta$ -phenylsulphonylethylamine hydrochlorides  | ... 47 |
| $\alpha$ -Aryl- $\beta$ -phenylsulphonylethylenes  | ... 47 |
| N-Benzyl- $\alpha$ -phenyl- $\beta$ -phenylsulphonylethylamine<br>hydrochloride                              | ... 51 |
| 3,3,3-Trichloro-2-hydroxypropyl-p-tolylsulphone  | ... 51 |
| The effect of solvent on the yield of $\beta$ -aminosulphone and<br>$\alpha$ , $\beta$ -unsaturated sulphone | ... 51 |
| The condensation of p-tolylsulphonylacetic acid with<br>benzaldehyde in presence of piperidine acetate       | ... 52 |
| $\alpha$ -p-Tolylsulphonylpropionic acid   | ... 52 |
| $\beta$ -p-Tolylsulphonylpropionic acid  | ... 53 |
| $\beta$ -Methyl- $\alpha$ -phenyl- $\beta$ -p-tolylsulphonylethylamine<br>hydrochloride                      | ... 53 |
| $\beta$ -Methyl- $\alpha$ -phenyl- $\beta$ -p-tolylsulphonylethylene   | ... 53 |
| $\beta$ -Methyl- $\alpha$ -3-nitrophenyl- $\beta$ -p-tolylsulphonylethylamine<br>hydrochloride               | ... 53 |
| $\beta$ -Methyl- $\alpha$ -3-nitrophenyl- $\beta$ -p-tolylsulphonylethylene                                  | ... 54 |
| Ethyl phenylsulphonylacetate   | ... 54 |
| $\beta$ -Ethoxycarbonyl- $\alpha$ -3-nitrophenyl- $\beta$ -phenyl<br>sulphonylethylene                       | ... 54 |
| Phenylsulphonylacetonitrile  | ... 54 |

|  | PAGE   |
|--|--------|
| Preparation of $\alpha$ -aryl- $\beta$ -cyano- $\beta$ -phenylsulphonyl-ethylenes          | ... 55 |
| $\omega$ -Phenylsulphonylacetophenone  | ... 55 |
| Reaction of $\omega$ -phenylsulphonylacetophenone with benzaldehyde and ammonia            | ... 55 |
| The condensation of $\omega$ -phenylsulphonylacetophenone with benzaldehyde in acetic acid | ... 57 |
| $\beta$ -Benzoyl- $\alpha$ -3-nitrophenyl- $\beta$ -phenylsulphonyl-ethylamine             | ... 57 |
| $\beta$ -Benzoyl- $\alpha$ -3-nitrophenyl- $\beta$ -phenylsulphonylethylene                | ... 57 |
| $\beta$ -Benzoyl- $\alpha$ -4-chlorophenyl- $\beta$ -phenylsulphonylethylene               | ... 58 |
| $\beta$ -Benzoyl- $\alpha$ -4-chlorophenyl- $\beta$ -phenylsulphonylethylamine             | ... 58 |
| $\beta$ -Benzoyl- $\alpha$ -3,4-methylenedioxyphenyl- $\beta$ -phenylsulphonylethylene     | ... 58 |
| $\beta$ -Benzoyl- $\alpha$ -4-methoxyphenyl- $\beta$ -phenylsulphonylethylene              | ... 58 |
| $\beta$ -Benzoyl- $\alpha$ -2-methoxyphenyl- $\beta$ -phenylsulphonylethylene              | ... 59 |
| $\beta$ -Benzoyl- $\beta$ -phenylsulphonyl- $\alpha$ -p-tolylethylene                      | ... 59 |
| $\alpha$ , $\alpha$ -Bis-(benzoylphenylsulphonylmethyl)-ethane                             | ... 59 |

## PART II

|  |        |
|--|--------|
| Introduction   | ... 61 |
| Discussion   | ... 69 |
| Experimental   | ... 76 |
| Bis-(4-acetamido-2-methylphenyl) sulphoxide          | ... 76 |
| Bis-(4-acetamido-2-methylphenyl) sulphone            | ... 76 |
| Bis-(4-amino-2-methylphenyl) sulphone                | ... 76 |
| Deamination of bis-(4-amino-2-methylphenyl) sulphone | ... 77 |
| Di-o-tolyl sulphide                                  | ... 77 |
| Di-o-tolyl sulphone                                  | ... 78 |
| Bis-(5-acetamido-4-chloro-2-methylphenyl) sulphoxide | ... 78 |
| Bis-(5-acetamido-4-chloro-2-methylphenyl) sulphone   | ... 78 |

|  | <b>PAGE</b> |
|--|-------------|
| <b>Bis-(5-amino-4-chloro-2-methylphenyl) sulphone</b> ...                              | <b>79</b>   |
| <b>Deamination of bis-(5-amino-4-chloro-2-methylphenyl)</b><br><b>    sulphone</b> ... | <b>79</b>   |
| <b>Bis-(4-chloro-2-methylphenyl) sulphone</b> ...                                      | <b>79</b>   |
| <b>2,6-Dinitro-acet-p-toluidide</b> ...  | <b>79</b>   |
| <b>3,5-Dinitrotoluene</b> ...  | <b>79</b>   |
| <b>3-Amino-5-nitrotoluene</b> ...  | <b>80</b>   |
| <b>3-Amino-5-chlorotoluene</b> ...   | <b>80</b>   |
| <b>3-Chloro-5-iodotoluene</b> ...  | <b>80</b>   |
| <b>3-Chloro-5-mercaptotoluene</b> ...  | <b>80</b>   |
| <b>Bis-(3-chloro-5-methylphenyl) sulphide</b> ...                                      | <b>80</b>   |
| <b>Bis-(3-chloro-5-methylphenyl) sulphone</b> ...                                      | <b>81</b>   |
| <b>Summary</b> ...   | <b>82</b>   |
| <b>Bibliography</b> ...  | <b>83</b>   |

---